THE

MAGICIAN'S OWN BOOK

BY THE AUTHOR OF

"THE SECRET OUT," "THE MODERN CONJUROR," &c.

EDITED BY W. H. CREMER, JUN.

ntaining Ample Instructions for Recreations in Chemistry, Acoustics, Pneumatics, Legerdemain, Prestidigitation, Electricity, (with and without Apparatus).



NAWAB SALAR JUNG BAHADUR

Performances with Cups and Balls, Eggs, Hats, Cards, Keys, Rings, Birds, Boxes, Bottles, Glasses, Dice, Knives, &c. &c.

WITH 200 PRACTICAL ILLUST

PRELIMINARY.

THE great and deserved success of "THE SECRET OUT; OR, ONE THOUSAND TRICKS IN DRAWING-ROOM OR WHITE MAGIC," Edited by W. H. CREMER, Jun., of Regent Street, has suggested an Entirely New Edition of the same Author's world-famous "MAGICIAN'S OWN BOOK," containing an endless variety of Performances with Cups and Balls, Eggs, Hats, Coins, &c., &c., &c. The Publishers have again secured the services of Mr. CREMER — the gentleman whose wonderful display of the Toys of the World attracted so much notice in the recent International Exhibition—and an eminently entertaining, but, at the same time, thoroughly practical, book is now before the reader.

The Publishers would also direct attention to another Book of this class, "THE ART OF AMUSING," a collection of graceful Arts, Games, Tricks, Puzzles, and Charades, considered by *The Athenæum* as being "the best and most entertaining work of the kind with which we are acquainted."

A companion volume, under the title of "THE MERRY CIRCLE: A BOOK OF NEW GAMES AND INTELLECTUAL AMUSEMENTS," with nearly Two Hundred Illustrations, has recently been issued by Mrs. CLARA BELLEW.

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Franjes. Curetjes. Viccajes.



PART I.

TRICKS EXECUTED WITHOUT CONFEDERATES,

AND

BY SIMPLE MEANS, WITH STARTLING EFFECTS

LORD DUNDREARY'S FINGER PUZZLE.

TO count eleven upon ten fingers, you begin at the thumb of the left hand and count all the fingers of both hands. Then begin at the right thumb, and count backwards, ten, nine, eight, &c., and, on coming to six—*i.e.* the little finger—hold up the left hand and say, "And five makes *eleven!*"

TO SEE THE SUNRISE AT THE EARLIEST MOMENT.

If, instead of looking towards the east, you turn your back to the point where the sun rises, you will perceive the first gleams of light on the top of any tall object, as a spire, a chimney, or a tree, long before the rays will be apparent on the eastern horizon.

STICK TO THE LAST.

Undertake that you will give a person three articles to hide, one after the other, and will tell him where he conceals the *last*. Probably he will wish to hide them out of the room. Agree to this. He will go out and leave the first two things in some secret place. During his absence, put the poker-handle into the fire, so that it will be moderately heated by the time he returns. On taking it, he will very naturally drop it on the floor, when you remark: "There, you have placed the *last* on the floor."

PEDESTRIAN PUZZLE.

As in the best proportioned person the muscles o the right side are somewhat stronger than those on the heart side, you can safely wager that any man, blindfolded, will not walk to a point across any considerable space; he will infallibly be diverted to the left, so as to describe a circle. Nevertheless, there have been cases where a blindfolded man has gone to a goal without many divergations. Without a guide, no blind man could proceed to any point from where he starts, whatever his intelligence.

QUIBBLES.

How can a circle be drawn round a person, which he cannot jump out of?—Around his body.

How can a candle be placed so that all can see it but the holder of it, though he shall not be blindfolded or debarred from looking?—Put it on his head, the miners carry theirs.

to empty a corked bottle of wine without draw-

ing the cork, breaking the glass, or making a hole in it or the stopper.—Drive the cork in.

How can you sit where another cannot?—In that other's lap.

To put something in a person's right hand which he cannot hold in his left:—Let it be his left elbow.

To crawl into a quart bottle:—Set the bottle in the middle of the room; go out, and returning on all fours, say, "Ladies and gentlemen, this is crawling *in to* the quart bottle!"

To push a friend's head through a ring:—Run your finger through the ring, and touch the person's head with the tip.

Ask a question to which "No" cannot be answered. —What does "Y-e-s" spell?

UNSPOKEN SPEECHES.

There was once a Carlyle Club, where was tried for a period the following of the precept, "Speech is silvern; silence is golden." A candidate entered the hall, without knocking, with a plaster across his mouth and his ears cottoned, in list slippers. But, alas!—the vacancy was filled. The chairman quietly insinuated water in a cup up to its brim, so that a single drop would have made it overflow. Unabashed, the suppliant drew a pin from his sleeve, and laid it on the surface of the water, where it floated. So sharp a fellow compelled the extension of the rules. The register was presented him for his name to be inscribed; but he only held out a parchment, and solemnly burnt it at the gaselier. The clerk instantly wrote, "Will—I—am Burns," which was, indeed, his name. Then the candidate blew on his singed fingers ("Scotch").

i.e., Scotch, wrote the clerk), took up the sandwich before the chairman, and devoured it (*Eat 'at for tea, i.e.*, ætat. 40, wrote the clerk), and gravely hopped backwards out of the room ("Retired dancing-master," concluded the clerk). They eagerly beckoned him in again, for which he thanked them thus: he laid on the table his snuff-box, sniffing at it inaudibly but pointedly, and put his ring on the left of it, that is to say: scent (*cent.*, a hundred, the number of the members) and 0, a cipher, before it, are 0100, or, in other words, "their value will be the same." Whereupon the chairman rose and spread himself without a sound, for this state of affairs was getting exciting. He laid *his* snuff-box before the other's, took a prodigious sniff, and pantomimed over this *cent. per cent.*: "1100, they will have eleven times the value they had before."

THE ARABIAN QUINCUNX.

Never	All	For he who	All	Often	More than
Tell	You may know	Tells	He knows	Tells	He knows
Attempt	You can do	Attempts	He can do	Attempts	He can do
Believe	You may hear	Believes	He hears	Believes	He hears
Spend	You may have	Spends	He may have	Spends	He may have
Decide upon	You may see	Decides upon	He sees	Decides upon	He sees

first, the first left-hand upper square and the below it, then the second upper square, and the

second of the second line, and so on. Then alternate each square of the upper line with each of the third line, and so on.

PALINDROMES.

A palindrome is one or more words which read backwards and forwards precisely the same. It was declared in the Dark Ages that the King of the Nether Regions spoke in this "back-slang,"* and his speech on the occasion of St. Martin forcing him to carry him, in the shape of a mule, has been preserved, to wit:—

"Signate, signa: temere me tangis et angis:
Roma tibi subito motibus ibit amor."

Meaning, in allusion to the good father employing the sign of the cross as a goad upon him, "Cross, cross thyself; thou plaguest and annoyest with necessity; for it is owing to my exertions that Rome, the object of thy wishes, will soon be near."

Other specimens in the same language, favourable for their invention, are: "Subi dura a rudibus," and "Odo tenet mulum, madidam mappam tenet ama" (in which, however, each *word* is the palindrome).

PUZZLE WRITING.

Of late years, "Rebus" has become a term applied to those modern hieroglyphics which tell a story in figures standing for letters, words, or parts of words; but formerly any plays with words were thus entitled. Of such is Dean Swift's "Dr ln u r a bu t—Dear Helen, you are a beauty," founded on the brief biography in French. "Hélène a été au pays grec, elle y a vécu, elle y a aimé, elle y a été aimée, elle y est décédée," thus represented: "LN A ET O PY, L I A VQ, L I A ME, L I A ET ME, L I E DCD,"—mean

* *See* Hotten's "Slang Dictionary."

"Helen has been in Greece, where she lived, loved, was beloved, and died."

YY U R, YY U B,
I C U R YY 4 ME.

Too wise you are, too wise you be,
I see you are too wise for me.

Friends Sir Friends
stand your disposition;
I bearing
A man the world
is whilst the ridicule.
contempt are
ambitious

Translation.

"Sir, *between* friends, I *under*-stand your *over*-bearing disposition; a man *even with* the world is *above* contempt, whilst the ambitious are *beneath* ridicule."

The means of secret correspondence between the Parisians and the army at Orleans being discussed at a party, an inveterate collector of curiosities was heard to express his wish for a copy of the military cypher. Shortly afterwards he received a note, with the following lines:—

2 A 0 Y 1.

U 0 a 0 And, O, let my 0
But I 0 thee; Thy 0 B
O, 0 no 0, And give 0 C
But, O 0 me. I 0 thee.

Deciphered.

TO A NAUGHT-Y ONE.

You sigh for a cypher, And, O, let my cypher
But I sigh for thee; Thy cypher be:
O, sigh for no cypher, And give sigh for sigh for
But, O sigh for me. I sigh for thee

A newspaper lately contained the following:—"Ac80c0ar80!!" The next day it explained it thus: "It's easy—A c-eighty (cat) c-aught (caught) a r-eighty (rat)—A cat caught a rat! Ain't it?"

A CAPITAL EXTEMPORE.

To the Author of some Lines on the River Dee.

Had I been U
And in the Q
As EC I might B;
I'd let U C
While sipping T,
Far better lines on D

A gentleman named Llewellynn Ottiwell Wood, being a witness in a case, and asked to spell his name, astonished the clerk as follows:—

"Double L E; double U; E double L; Y double N; O double T; I double U; E double L; double U; double O D."

- All - All - All -

U Love U

- IIV - IIV - IIV -

Which is but an uncommon mode of saying: "All around you love you."

The figure of a man suspended within a capital D will represent "A Man In-de-pendant."

"To-morrow $\frac{\text{I go}}{\text{the day}}$ = I go on the day after to-

Punctuation marks are capable of more extended use in literary matters than they are usually thanked

There was a Quaker who wrote for news to a distant friend by simply putting a note of interrogation on his paper: (?); to which came the reply, a blank sheet: "No news." Then, again, a son offered his mother, dwelling with a sister, his home, thus: ", (come-ma)" —but all the answer was: "234567890 (*i.e.*, *no* 1) = (equals) . R (*i.e.*, *a dot*-er)." And even merchants may achieve a saving in ink and paper by following this plan:—

"DEAR JONES,
; (see my coal on)
Yours, SMITH."

"DEAR SMITH,
: (coal on)
Yours, JONES."

In enclosing a photograph of yourself to a friend, in which your organs of vision have not "come out well," how compactly the communication appears: "? ? ?. (Queer eyes—a-pear-I-odd?)" compared to the numerous letters when it is spelled out. Or, as a direction to a servant, what equals these lines:—

"If the B MT put:
But if the B . putting:"
"If the grate be empty put coal on,
But if the grate be full stop putting coal on."

THE RITE OF WRITING RIGHT.

By a Playwright.

Write we know is written right,
When we see it written write;
But when we see it written wright,
We know 'tis not then written right;
For write to have it written right,
Must not be written right nor wright,
Nor yet should it be written rite,
But write—for so 'tis written right.

2 U, O! 2 U
I vow 2 B true;
2 C U Y I
In XTC I !
I 8 LN G.,
Always following me;
4 U, O! U R
NICR-looking by far!
So when I C L N,
My head I shall toss;
& U, if U chance 2,
B sure 2 look X.

Translation.

To you, O! to you I vow to be true;
To see you, why I in ecstasy hie!
I hate Ellen G., always following me;
For you, O! you are nicer-looking by far!
So when I see Ellen, my head I shall toss,
And you, if you chance to, be sure to look cross.

ANAGRAM.

If we take the letters composing a word, as "Lion-heart," and use them to form another word or words, as "The Nailor," we construct an anagram. Some are excessively amusing, as "D'Orleans: L'Asne d'Or (the golden donkey)," Necker's "Compte rendu au roi (account rendered to the King): O mon pauvre crédit (Oh! my poor credit)!" "Proust: Pur sot (regular fool)," &c. And some are positively startling, as "Jan de Pruam: Pendu à Riam (hanged at Riam);" or "Revolution Française: Un Corse la finira (a Corsican will end it), et—La France veut son roi (France asks for its King)." As modern instances, take "Disraeli: Se (e)

I'd rail;" or "Gladstone, Premier: Rear me no gilt dips" (prophetic, his admirers may say, of one whose fame will be brilliant enough without tapers being burnt).

Those words are most easily disarranged in which the proportion of the consonants is to that of the vowels as one to two, and in which there are few rarely used letters. Y and I, and U and V, are interchangeable. In a long word or sentence your success is facilitated by employing slips of card on which you write the letters, and which can be readily placed in any position; or the toy cards on which are printed the letters of the alphabet are easily obtained.

Anagram.

Once-famed physician, when transposed, a being will show,
Who, commissioned on high, protects men below.

Answer.

The physician GALEN, when transposed, will show
That an ANGEL may guard us poor mortals below.

THE CONTRADICTORY LETTER.

A lady, finding a half-sheet of note paper bearing the following gentlemanly avowal in a hand well known to her, naturally confronted the writer, denunciation in hand:—

"I heartily despise
Angelica whom I declare
The most absurd creature
In the world. She is
No more witty than charming
Whoever she catches

Is much to be pitied
The wretch who could
Love such a mass of
Rubbish only fit to be
Sent to Coventry."

Happily, he was able to excuse himself, saying, "I was looking for that very paper, as it requires the other half to express my feelings—you will see by putting the two together."

The other half-sheet, to go on the right hand of the former, bore these words:—

———— " the slanderer of Miss
———— condemned clearly as
———— that ever flourished
———— decidedly enchanting,
———— But punishment will come
———— detracting that angel
———— for I'll be the death of
———— so distress the lady I
———— libels is but
———— burnt and the authors "

The reader will remember the part which a letter of this construction plays in "Monte Christo." A variation is to make the lines read with different meanings, either when all are taken consecutively, or the first, third, and fifth, and so on, skipping one.

ARTIFICIAL MEMORY.

A good memory is valuable to the clearest-headed conjuror, and as most brains can strengthen this desirable power by application, we place here one of the methods.

We can remember, in our schooldays, how proud our

rector was of his proficiency in this art, losing hours in exhibitions of his ability thus to recall the most perplexing incidents in "the Art of Verifying Dates." Only once had he a downfall, yea, "a cropper," when, on one occasion, after he had strongly impressed upon us the perfection of his improved system, by which no student could ever forget a single thing, however minute, he re-entered the room, looked searchingly around, and darting at his umbrella, *forgotten* during his magnificent peroration, again left the room, amidst our laughter.

Artificial memory respects neither figures nor words; for the former, let the five vowels, *a*, *e*, *i*, *o*, *u*, represent the first five digits; the diphthongs that begin with the first four vowels, as *au*, *ea*, *ie*, *ou*, representing the remaining four digits, let *y* stand for an 0, or cypher. Let the ten first consonants also stand for the nine digits and the cypher, as in the following table :—

a	e	i	o	u	au	ea	ie	ou	y
1	2	3	4	5	6	7	8	9	0
b	c	d	f	g	h	k	l	m	n

Taking any number, let the first letter be a vowel or diphthong, the second a consonant, the third a vowel, the fourth a consonant, &c. Thus for the number 1871, you write or remember the word *aleab*; if there are several sums to be retained, place the words in form of verses, to make them easier to remember, and smoother to the tongue. When the first figure is always the same of each date in such a series, only write it the first time; instead of repeating *y* or *n* when several cyphers come together, write *y* or *n* 2, 3, &c.; thus, for 2,300, write *edy* 2, and for 364,000, *ihon* 3. To

remember a number of words, to the initial letter of the first word add *a*, if it begins with a consonant, or *b*, if it begins with a vowel. In like manner *e* or *c* to the second initial letter; to the third add *i* or *d*; to the fourth *o* or *f*; to the fifth *u* or *g*; so that of the five initials are made five syllables, thus forming one word. Of the next five initials you likewise make another word; every two words form a verse.

REMARKABLE SINGULARITY.

In 1830 the French Parliament of 402 members was divided, like all other Parliaments past, present, and to come, into two parties, one of 221 members, nicknamed *la queue de Robespierre* (Robespierre's tail or following), and the other of 181 members, *les honnêtes gens* (the honourable party). Now, giving the letters of the alphabet their numerical value in order, as A 1, B 2, and so on, and uniting the corresponding numbers under each letter of these titles, the sum of the first column is 221, and the other 181.

LA QUEUE DE ROBESPIERRE.
12 1 17 21 5 21 5 4 5 18 15 2 5 19 16 9 5 18 18 5=221

LES HONNETES GENS.
12 5 19 8 15 14 14 5 20 5 19 7 5 14 19= 181

Total 402

EPITAPH ON MARSHAL SAXE.

These lines end each with the sound of a number, of which the total is 55, the Marshal's age:—

His courage earned praise from every one . . 1
His foes had success, but he triumph'd too . . 2
He defended great sovereigns three 3
And overthrown ne'er was before 4
Of victories winning more than five 5
He's lost not ten inches of ground; nay, not six 6
Death to the hero but opens heaven 7
He died on November eight 8
To Strasbourg, town of *yaw* and *nein* . . . 9
O'er his tomb France mourning comes often . 10

55

THE CIRCLE TRICK.

To draw a circle on a piece of paper, and, without crossing the circle or thrusting the pin down upon it, run a pin through the centre?—Why, run the pin *up* through the centre, of course.

THE GRECIAN PARADOX.

Protagoras agreed to instruct a young man in oratory for a sum of money, one half down, and the other to be paid *when the pupil made his first successful pleading in the courts.* Long after the instructions were concluded the pupil neither paid *nor pleaded*, and the Greek philosopher brought an action for the recovery of the unpaid money. Both parties argued in person; Protagoras contending that whichever way the case was decided he must recover; for if the pupil lost, the money must be paid according to decree of court; but if the pupil gained, his *successful pleading* would make the money due according to agreement.

The pupil contended, *per contra*, that the money ought *not* to be paid; for if he (the pupil) gained, the decree of court would excuse him from payment; but if he

lost, the *unsuccessful pleading* would equally excuse from payment according to agreement.

The perplexed judges dismissed the case, being an extinguishment of Protagoras's claim. Nevertheless, put it to some legal friend, who will not send you in a bill for opinions rendered, and see what will be his decision.

THE ROYAL QUIBBLE.

How many kings have been crowned in England since the Conquest?

James the First was made a muckle king
Of Caledonia's shore;
The only *king* in England crowned
That was a king before.

PARADOXES.

A man that was young at threescore-and-ten,
He gave it me in, and wrote it down then.
His friend was more old at twenty-and-two;
You may think it false, but 'tis certainly true.
Reader acute, this secret unfold,
For old he died young, and young he died old.

Answer.

The young was named Old,
And the old was named Young,
So a paradox from that odd
Circumstance sprung.

Mathematicians affirm that, of all bodies contained under the same superficies, a sphere is the most capacious; but, surely, they have never considered the amazing capacity of a body of which the name is now

required, and of which it may be truly affirmed that, supposing its greatest length 9 inches, greatest breadth 4 inches, and greatest depth 3 inches, yet it contains a solid foot.

Answer.—A Shoe.

If from six you take nine, and from nine you take ten,
(Pray, reader, the mystery explain),
And if fifty from forty be taken, there then
Shall be just half-a-dozen remain.

Answer.—If from SIX you take nine, and from IX take ten, and from XL take fifty, then SIX does remain.

Nothing and six, with five hundred, when framed,
Will tell you a poet in ancient times famed.

Answer.—A cypher and VI, with a D, will form the poet's name OVID.

ARITHMETICAL PARADOX.



In an Arabic manuscript was found this remarkable decision of a dispute:—Two Arabians sat down to dinner; one had five loaves, the other three. A stranger passing by, desired permission to eat with them, which they agreed to. The stranger dined, laid down eight pieces of money, and departed. The proprietor of the five loaves took up five pieces, and left three for the other, who objected,

and insisted on one-half. The cause came before Ali (the magistrate), who gave the following judgment:—"Let the owner of the five loaves have seven pieces of money, and the owner of the three pieces, one." Query, the justice of this sentence.

Ali's sentence was just; for suppose the loaves to be divided into three equal parts, making twenty-four parts in all the eight loaves, and each person to eat equal or eight parts. Therefore, the stranger had seven parts of the person who contributed five loaves, or fifteen parts, and only one of him who contributed only three loaves, which made nine parts.

A truss of hay weighing but half a hundredweight in a scale, weighed two hundredweight stuck upon the end of a fork carried on Hodge's shoulder. *How could that be?*

Answer.—The fork was as the steelyard, Hodge's shoulder as the fulcrum sustaining the burden between the two powers acting at both ends of the fork.

Come, tell to me what figures three,
When multiplied by four,
Make five exact, 'tis truth in fact,
This mystery explore.

Answer.—In decimals 1.25 is $1\frac{1}{4}$, which being multiplied by 4, the product is 5.

How can a mechanic file a square hole with a round file, and fill up an oval hole with a round stopper?—*Answer.* A piece of pliable metal being doubled, by applying a round file to the double edge, and filing a half-square gap, on opening the metal a square will appear. Again, if two corners and an edge, at the end of a miner's iron chest, be filed away with a round file (or any other), there may be an exact square hole left. And, further, if a cylindrical body be cut obliquely, the

plane of the section will be an oval; and, consequently, a round body, situated obliquely in an oval hole, will completely fill it.

THE MAGIC OF ARITHMETIC.

To tell Numbers thought of.

1*st Method.*—Multiply the number thought of, say 5, by itself 25
Take 1 from the number thought of . . . 4
Multiply this by itself 4×4 16
Subtract this product from the former, leaving . 9
Add 1 to this 10
Halve it 5
Which must be the number thought of, 5.

2*nd.*—Multiply the number thought of, say 5, by 3 15
Add 1 16
Multiply by 3 48
Add the number thought of, 5+48 . . . 53
Ask the result, which must end with 3, which you strike off mentally, and declare the number to have been the other figure, in this case 5.

3*rd.*—Triple the number, say 5×3 . . . 15
Halve it, or take the greater part if not divided evenly 8
Triple that result 8×3 24
How many times will 9 go into it: 24 ÷ 9 *two* times; and the number thought of will contain the double of that number of nines (2×2 = 4), and one more if it is odd; therefore it was 4+1 or 5.

4*th.*—Square a number, say 5×5 . . . 25
Add 1 to the number thought of, 5+1 . . 6
Square this number 6×6 36

Find the difference of the squares: $36-25=11$, which must be odd, and its lesser half (in this case 5) is the number thought of.

5th.—Double a number, say 5×2 . . 10
Add $4+10$ 14
Five times it, 14×5 70
Add 12, $70+12$ 82
Multiply by 10, 82×10 820

Ask the result. Subtract in every case 320; the remainder this time is 500; strike off the two cyphers, and say the number thought of was 5.

6th.—Add 1 to a number thought of, say 5 . 6
Multiply by 3 18
Add 1 again 19
Add the number thought of . . 24
Let him tell you the figures produced (24).
You then subtract 4 from it, $24-4$ . . . 20
And divide by 4, $20\div4$ . . 5
Which you say is the number thought of.

7th.—Take 1 from the number thought of, say $5-1$ 4
Double the remainder, 4×2 8
Take 1 from this double, $8-1$ 7
And add to it the number thought of, $5+7$. 12
Ask to learn this result, and add 3 to it . . 15

Divide by 3, and the result will be the number thought of.

Variation.—Instead of doubling the number thought of, after subtracting 1, it may be tripled; then after 1 has been taken from that triple and the number thought of added, let 4 be added, and the fourth of the result will be the number required.

8th.—Triple a number, say 5 15
Add 1 to the sum, $15+1$ 16

Multiply this result by 3, 16×3 48

Add to this the number thought of, that is: $48 + 5$ 53

Ask the sum, from which mentally subtract 3, and strike off the cypher on the right hand of the other figure, and the latter will be the number thought of, 5.

Variation.—If 1 were subtracted from the number thought of, the remainder doubled, and the number thought of again added, it would be necessary, on learning the result (which always terminates in 7), to *add* 3 instead of subtracting it as in the above operation; and the sum would be ten times the number thought of.

9th.—Think of a number, say 5

Add to it any number, say 10

Multiply the sum 15 by the number thought of, 15×5 75

From this take the square of the number thought of, being $5 \times 5 = 25$, and $75 - 25$ 50

Ask the remainder.

Now, if you divide the remainder 50 by the number you gave to be added, 10, the quotient will be the number thought of.

Variation.—Think of a number, say . . . 5

Take a lesser number, say 3, from it, $5 - 3$ . . 2

Multiply the remainder by the number thought of, 2×5 10

Take this result, 10, from the square of the number thought of, that is, $25 - 10$ . . . 15

And having been told this, you mentally divide it by the number you ordered to be taken from the number thought of, which will give the number thought of.

10th.—Think of a number, say 5

Take a less number from it, say 3, 5 − 3 . . 2

Add the same number 3 to the number thought of, 5, 3+5 8

Add this sum 8 to the previous remainder 2, and ask for the result. Half of it, 10, will be the number thought of, 5.

11*th*.—Double a number, multiply the product by 5, and tell the result. On cutting off the last figure, which must be a cypher or a 5, the number left will be the one first thought of. *Example* :— Think of $2 \times 2 = 4 \times 5 = 20$, from which the cypher being removed, the 2 left is the original number.

TO MEASURE THE HEIGHT OF AN INACCESSIBLE TOWER.

Let A B represent the tower, church-steeple, or factory-chimney of which the height is to be ascertained.

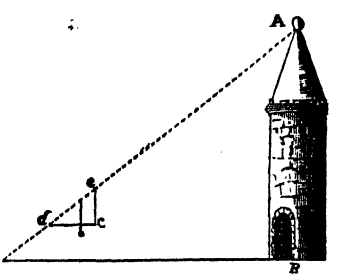


Fig. 1.

Cut out of wood or cardboard a rectangular isosceles triangle, with its sides *d c* and *e c* seven or eight inches long. Near one side draw a parallel line, at the end of which attach a shot by a bit of silk, fastened at F. Hold this triangle so that the silk will hang *i*

you drew, and advance to or recede from the tower until, looking along the line *d e*, the highest point A lies in the same direction as that line. Now measure the distance from *d* to B, adding five feet for your height, and the same will be the altitude of the tower.

This supposes the surveyor to be on a level with the foot of the object; if not, you must allow for the difference.

TO MEASURE HEIGHT BY ITS SHADOW.

Let A B be the height of a tower to be measured by its shadow B C.

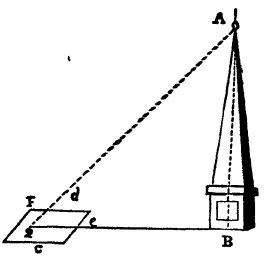


Fig. 7

On a small horizontal board, F, stand a stick *d e* perpendicularly, and reason as follows:—As the shadow *e* 2 of the stick is to the height *d e*, so the distance C B from the end of the tower's shadow to its base is to its height A B; in other words, there is the same proportion between the shadow C B and the height A B as between the shadow *e* 2 and the height *d e*.

TO MEASURE THE HEIGHT OF A TREE.

Walk from the base of the tree to a point where, on turning the back towards it, and putting the head be-

tween the legs, you can just see the top; at the spot where you are able to do this, make a mark on the ground. The distance to the base of the tree from that mark will be equal to the height.

TO TELL WHICH ARTICLE EACH OF THREE PERSONS TOOK.

Supposing you have placed on the table a watch, an egg, and ring, you must give them each names in the alphabetical order of the vowels, calling the watch A, the egg E, and the ring I, which is easily remembered, and the persons must be designated as 1, 2, and 3. Then you deal out twenty-four cards, tokens, or counters, giving one to the first person, two to the second, and three to the third; and placing the remainder of the counters on the table, turn your back or leave the room, telling the persons each to take an article, and that whoever takes the watch is to take also as many counters as he already has; he who takes the egg, twice as many; and he who takes the ring, four times as many. On your return, you reckon the remaining counters, and according to their number and one of the underneath lines, which must be got by heart, you tell who took each of the articles.

1.	2.	3.	5.	6.	7.
Take her	certain	anise	seedlings	Ida	quince
Salve	certa	animæ	servita	vita	quies
Par-fer	Cæsar	jadis	devint	si-grand	prince

Thus, if there had been a remainder of six counters, the position of the vowels in the corresponding word *vita* shows that the first person took *i*, the ring; and the second took *a*, the watch; and, consequently, the third person must have taken the egg. It must be

observed, that in no instance can there be a remainder of four counters; and that the first syllable of each word represents the first person, and the second syllable the second person. This ingenious feat is founded on the permutation of the three articles, or their representative vowels, which can only be placed in six different positions, and the corresponding numerical arrangement of the counters, thus:—

1. *a e i* Take her.
2. *e a i* certain.
3. *a i e* anise.
5. *e i a* seedlings.
6. *i a e* Ida.
7. *i e a* quince.

TO FORETELL WHAT HOUR A PERSON WILL RISE IN THE MORNING.

Mr. Simpleton will instantly cry out, "Pooh, pooh! you need only place a machine under the victim's bed, which will toss him out on the floor at your own fixed time in the morning."

Not at all so. You merely say that there is a secret method of telling at what hour a person wishes to rise. To do this, take out your watch, adding twelve to the hour it is; this done, beg the person to count that sum from the hour he determines on rising, backwards—that is, from right to left—but not beginning by *one*, but by the number of the actual hour. *For example:* let us suppose the hands of the watch are on four o'clock, and the person means to be up at eight—you mentally add 12 to 4, which makes 16; so you desire the person to count to 16, beginning with 4, which is the time the watch denotes, at the hour he wishes to rise; the last number will fall on 8.

A NUMBER BEING GIVEN, TO MAKE ITS SUM ADDED TO ANOTHER NUMBER PLACED AT PLEASURE, DIVISIBLE BY 3 OR 6.

Suppose the number 87,235, which figures add up into 25; having noted this fact, let any one add a 2, 5, or 8, where they please, which will make the sums 27, 30, or 33, all of which are divisible by 3. If the number ends with an even figure, as 2, 4, 6, 8, or 0 (consider the cypher as even), and the figure is added before that denoting unity, the number will be divisible by 6. *Variation*: Suppose the number given 4,177, of which the sum is 19; let an 8 be added where one pleases, and then announce the divisibility of the sum by 9, for the sum 27 is of that nature. Instead of adding 8 in one figure, let it be given in parts, as 53, 44, 125, &c., which make the result the same. Though the additional 8 or its parts can be placed anywhere, make the recreation more mysterious by fixing the place it or they must occupy.

PARADOXES.

One summer evening, as I was taking a walk, I heard the voice of some one behind, calling to me; I turned back, and saw it was a friend, at the distance of 400 yards, wanting to overtake me. We moved each of us 200 yards, with our faces towards each other, in a direct line, yet we were still 400 yards asunder. How can this possibly be? *Answer.*—The former moved 200 yards backwards with his face towards his friend's, and the latter 200 yards forwards with his face towards him.

If 5 times 4 is 33, what will be the fourth of 20?—$8\frac{1}{4}$.

With four fives make $6\frac{1}{2}$?—$5\frac{5}{5}$.5.

How to make nine by multiplying two numbers one of which is greater than three?—9×1.

How long will it take to divide thirty yards of cloth into yard lengths, if one is cut *per day?*—29 days.

What two numbers are they which united make 50, the greater of which divided by 7 and the less multiplied by 3 yield a quotient and a product whose addition also makes 50?—35 and 15.

What is the difference between twice 25 and twice five and twenty?—Twice 25 is 50; but twice 5 *and* 20 is 30.

THE IMPOSSIBLE TRIANGLE.

Given a triangular field with its longest side 100 rods, and each of the other sides 30 rods, what will be the value of the wheat at 9*s.* 6*d.* an acre? *Answer.*—A triangle must have any two of its sides longer than the other.

What is the difference between six dozen dozen, and half-a-dozen dozen? *Answer.*—792; six dozen dozen being 864, and half-a-dozen dozen, 72.

The sum of four figures in value will be
Above seven thousand nine hundred and three;
Halve them, and you in surprise will be taught
The sum of no value that's figured as naught.

Answer.—The four figures 8888, being divided by a line drawn through the middle, become $\frac{0000}{0000}$, the sum of which is eight 0's, or nothing.

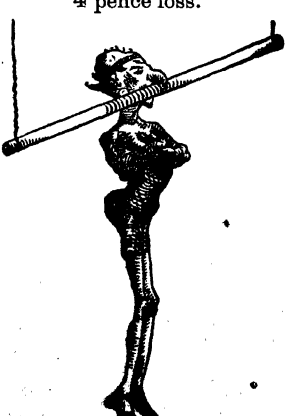
THE COSTERMONGER'S PUZZLE.

A costermonger bought 120 apples at two a penny, 120 more of another sort at three a penny; but not liking his bargain, he mixed them together, and sold them out again at five for twopence, thinking he should recover the same sum; but on counting his money, he found that he had lost fourpence. How was this?

Answer.—At first sight there appears no loss; for supposing that in selling five apples for twopence, the costermonger gave three of the sort at three a penny, and two of those at two a penny, he would receive just the same money as he bought them for; but it is evident that the latter stock would be exhausted first, and consequently the man must sell as many of the former as remained over at five for twopence (bought at two a penny or four for twopence), and would therefore lose. When all the latter sort were sold in the above manner, he would have sold only eighty of the former, for there are as many threes in one hundred and twenty, as twos in eighty; therefore the remaining forty must be sold at five for twopence, which were bought at the rate of four for twopence, thus:

	A.	P.		A.	P.	
If	4	2	::	40	20,	prime cost of 40 of the first sort.
	5	2	::	40	16,	selling price of ditto.

4 pence loss.





PARLOUR DIVERSIONS.

EATABLE CANDLE-ENDS.

Cut out of a large apple a solid cylinder of the size of an end of a candle, most easily done by punching a metal tube through the fruit. The slide of an umbrella will do for an imitation taper. In the centre of one end stick a long cutting of a peeled almond, which will look like a wick. Light it, and blow it out when the flame has fairly caught it. When before the company, relate how you had a friend who was colonel of a Cossack regiment, and from whom you learnt to eat tallow on Candlemas day (lighting the deceitful, wicked thing); then blow out the light and eat it up with gusto

THE IMPOSSIBLE REPAST.

Defy anyone to take up a cherry with its stalk, and putting the end of the stem between his teeth, to get the fruit within the mouth. The difficulty is, that when the teeth catch the stem close up to the cherry, there is not sufficient hold for the lips of most people. Very thick lips, however, have a chance of succeeding. The right way to perform the trick is, when you have the r against your teeth, to suddenly draw your and the inspired air will carry the fruit in

TO CUT AN APPLE THROUGH A CLOTH.

If you bear firmly on a knife upon an apple covered with a napkin, the knife will carry the cloth down under it through the fruit without severing a single thread.

TO LIFT THREE MATCHES WITH ONE.

You require four matches, or splinters of their size. One you nick at the end; the end of another you cut into a wedge to fit this nick. Insert it so that the two will keep together at an angle. Make a tripod of these

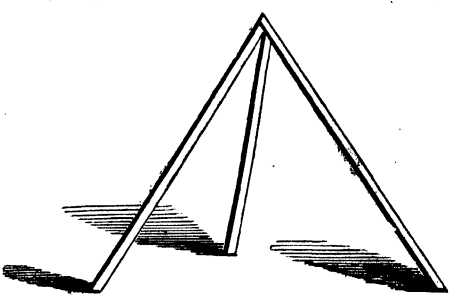


Fig. 3.

two and the third, and thrust the end of the fourth, D, under the top ends of A, B, C; balance on the table, and gently push the two matches, A and B, back far enough to let C fall upon D, and the joined pair will overlap the single one C, as shown. You can now lift and carry them all away.

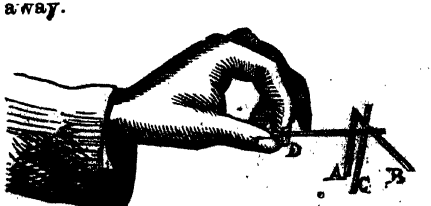


Fig. 4.

THE UNITED IRISHMEN, OR THE SEPARATED CORKS.

Pick up a couple of wine-bottle corks, and say, laughingly, "These gentlemen from Cork are a very sociable race whenever they are separated; no matter what the space or obstacles, they contrive to come together by the aid of a little patience and art." Take one in each hand between the base of the forefinger and thumb. You offer to take each cork away from its place at the same time, and yet have them free, and not as in the illustration.



Fig. 5.

the back of your left hand and the palm of the right towards you; place the thumb of your left hand on the end of the right cork, and the thumb of your right hand on the left cork.

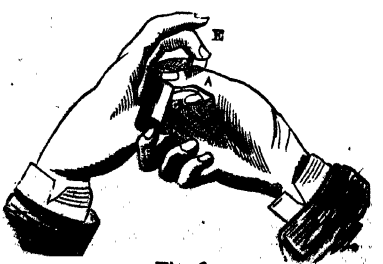


Fig. 6.

middle left-hand finger, E, on the end of the

cork in the right hand, and the right forefinger on the end of the cork in the left hand.

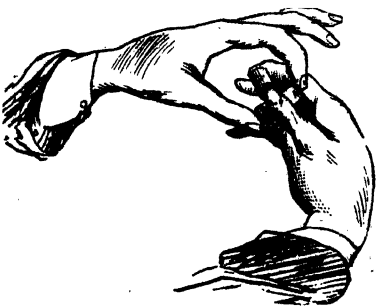


Fig. 7.

By parting your hands, the worthy old cobwebbed Corkonians are free to be set down side by side on the table.

A CORRECTIVE SURPRISE.

Some persons carry to extremes the otherwise noble and traditional English attitude of standing before the fire with the face from it, and the hands behind the back, gently warming in the cheery blazes. To hint that the gentleman ought not to monopolize all the heat of the coals he has paid for, to the exclusion of shivering ladies and benumbed friends, is out of the question on an Englishman's hearthrug; but if you will drop abruptly into his hands a freshly extricated oyster, he will be wondrously startled. His fingers will instinctively close on the unknown, semi-animate, viscid, clammy object, and his bewilderment as to what to do with it will be highly instructive to a painter of Man in Distress. He will not put his hands, *open*, at least, behind him again, in a fortnight, unless he is alone.

A FUNNY TRICK OF AUDACITY.

Having shown half a-dozen pieces of paper, or thin cloth, about the size of a shilling, mysteriously place three of them on the back of the right hand, and on blowing them they will naturally fly off. Make a remark that even paper contains latent magnetic forces, which render it obedient to one's will, so that "however hard you blow upon your hand with the three other papers on it, the one desired by the company to remain on it, spite of the airy current, will so stay." When one has been designated, merely lay your left forefinger on it, and, on blowing, the other two pieces will fly away. Such an impudent feat will occasion great applause and hilarity.

THE MAGIC SKETCH-BOOK.

Have an octavo book of white paper, as thick as you please. Turn over a certain number of leaves, say seven from the first, and paste in or paint a group of flowers; then turn over seven more leaves, and paint the same again, and so on, until you have reached the end. Then paste a slip of paper or parchment to each of the painted leaves. Turn the book over again, and paint upon every sixth leaf a bird of some kind, and then paste strips upon them as you did upon the first, only a little lower down. Proceed in this manner until you have painted the book full of pictures of various sorts, taking care one side of the leaves is left blank. When you use the book, hold it in your left hand, and set the thumb of your right hand upon the first of the parchment stays; run the book through, and it will appear full of flowers; then stop, and, blowing upon the book, run it through again, with the thumb upon the *second* slips

of parchment, and it will appear full of birds. Afterwards, turn the book upside down, and run it through as before, and it will appear composed of blank paper.

TO SWALLOW A CANDLE FLAME.

On putting the lighted candle to your lips, breathe in strongly, and the flame will enter your mouth without burning you, for it has no time given it to scorch the lips.

THE ANIMATED PIPE-LIGHT.

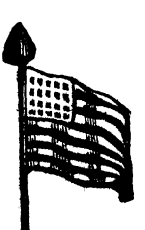
A piece of letter-paper, six inches long and three quarters of an inch broad, is folded lengthwise and cut with a knife in the crease about five inches down. One side still connected at the bottom, by the back of the knife under it, and the thumb of the right hand over it, is curled outwards; repeat with the other side. When about to use them (but not till then, as the curl will soon go when stretched), draw the papers up so as to make them their original length, and turn the ends over a little to keep them fixed; when set on fire, they will burn for a minute or two, until the turn-over is burnt out, when the lighted ends will turn over quickly, burning the fingers of the holder, who will drop it in fright, while the company will be amused most *consumedly*.

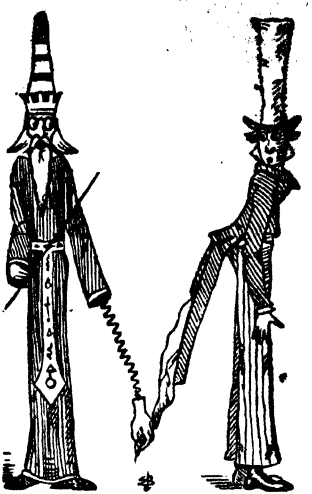
TO FLING DOWN A FRAGILE OBJECT WHICH NOT BREAK.

Speak of the Iconoclasts or Image-breakers, and, moulding a little figure out of new bread, throw it down on the floor, but it will not break, however violent the fall.

TO DROP A TUMBLER ON THE FLOOR WITHOUT BREAKING IT.

Draw a tumbler to the edge of a table without a cloth, and preface the feat with this anecdote:—"It is never prudent to take as a certainty that rule which has any, if only a few, exceptions. An officer, on the eve of a march to the front, rose at the mess table, glass in hand, to give a toast, and said, 'Thus will we shiver the armies of the enemy!' and, in so saying, dashed his tumbler on the floor. Unhappily, by an uncommon chance, the glass struck the boards in such a manner that, despite the shock, it not only did not fly to splinters, but was not even cracked. You will say, that was impossible! And yet (here you shove the glass over the edge half way, so as to be only a trifle more on than off), I will exemplify with this tumbler that breaking does not inevitably follow the fall of glass (give the tumbler a slight push, and it will fall, bottom down, so as to strike the floor *squarely*, when it will either remain with the mouth up, or turn on its side uninjured). Q. E. D., gentlemen!"





MISCELLANEOUS TRICKS WITH ARTICLES EASILY OBTAINED.

A MAN FLOATING IN THE AIR.

Let the subject of the experiment lie on a table of his own length, and about a yard wide, his legs extended, and his heels together. Four persons stand around him, and put their forefingers under him at regular distances, to lift him up at a given signal.

Beginning at the right of the subject, the first person breathes out upon the body from the head to the middle; the next exhales on his legs; the third on his legs from the other side upwards; and the last from waist to head. Repeat this fifteen or sixteen times without stopping.

Then, at a signal agreed upon, all lift up the man on their forefingers, to the amazement of the bystanders, that eight fingers alone can uphold such a weight.

It is supposed that the cause rests in the displacement of atmospheric air, caused by the exhalation of the four operators.

It will further the performance if the subject himself expels the air from his lungs just before he is lifted up.

The magician himself is to stand near and speechify to bewilder the lookers-on during the preparations.

TO MAKE A BALL GO BACKWARDS, THOUGH MEETING NO OBSTACLE.

Strike a billiard-ball on the table, on its side or back, with the edge of the open hand perpendicularly. After going a few inches forward, it will roll the other way, without having met any obstacle; thanks to your blow having given it, at the same time as a motion of rotation round its own centre, one of its centre moving parallel to the table. The latter is annihilated by the friction on the table, and the other exerts its force.

THE STEAM GUN.

Spike the touch-hole of a musket; put three or four inches of water down the muzzle, and drive in a wad so thick that it will be only with difficulty that you ram it down. Expose the end of the barrel where the water is to a lamp, or a chafing-dish of lighted charcoal, and get out of the way. The more resistance the wad offers, the more terrific the report.

SINGULAR UNDULATIONS.

Wind a wire round a glass, by which you can suspend it with two threads, one diagonally from each side to points two feet from the glass; imagine the glass marked off in fifths, three of which you will fill with water, and one with oil, leaving the rest of the space to shelter the contents from the air. Now swing the glass to and fro, when the water will be greatly agitated, but the oil will remain undisturbed.

TO FORM DESIGNS IN RELIEF BY DILATION.

Take a block of very dry, sound wood, as oak, box, &c., and press it firmly with a metal stamp on which is cut your design in relief, so that the lines are driven deeply into the wood. Plane the surface until you have reduced the untouched face to the level of those fibres you compressed, and soak the block in boiling water. The wood will swell, and bring up in relief whatever you impressed it with. From time out of mind this process has been practised. Boxwood cases, cups, and other such articles can be prettily made by this means. The die is first shaped in soft iron, which is steeled afterwards.

THE ROUND PEG IN THE SQUARE HOLE.

To pass a cylinder through three different holes, yet to fill them entirely.

Cut a piece of round wood into the cylinder A. In the card or thin piece of wood D cut the circle A, equal to the base of the cylinder, the parallelogram B equal to its height and its diameter, and the oval C with its least diameter equal to that of the cylinder. Through

any of these holes the cylinder will go, filling them up entirely.



Fig. 8.

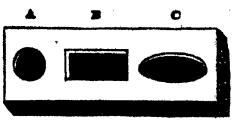


Fig. 9.

A cone can be made to similarly pass through a circular or triangular opening, as is shown in figures 10 and 11.

g. 10. Fig. 11.

THE FROG EMULATING THE OX.

Take a sheet of very thin india-rubber, such as the toy captive-balloons are made of, and, inserting a metal mouth-piece with a stopper, blow it out into a small ball. On this paint a comic face. Put the little pipe in the nozzle of a pair of bellows, and, blowing it out, the face will enlarge into gigantic dimensions, and present a laughable aspect.

A SIMPLE RAT-TRAP.

Fill with water a jar with a narrow neck, and lay on the top a very thin slip of wood, on which cheese is to be lightly laid. The rats will be deceived by the apparent solidity of the raft, and be drowned irremediably.

A COMICAL WAY TO TAKE RATS OR MICE.

Make of parchment little cones about four inches long, by securing or glueing them, large enough at the

mouth for a rat's or mouse's head to go in. Smear them inside with glue or strong bird-lime, and drop a piece of cheese into the apex of the hood. Put them near the haunts of the vermin; they will soon get capped with these funny head-pieces, and, even if they get back into their holes, will frighten their fellows terribly. But the chances are they will tumble blindly about, so that they can be killed quickly.

If pieces of old parchment, smeared with bird-lime, be placed near the *runs* of rats, they will not only catch themselves in them, but, by their frantic rolling, wrap themselves up as in garments.

LUMINOUS LETTERS.

Heat brass type, and press them on very dry paper; on looking at the impressions in a dark place, they will appear luminous.

A piece of phosphorus put in a quill will also enable you to write letters which will shine out in the dark.

BURNING WORDS (IN PROSE).

Write, without taking your hand off, with a paint-brush, with water, on paper, and put potassium as big as a swan-shot on one line, when it will burst out into purple flame, and run to the last letter. By using turmeric paper, the writing will appear a deep brown. You can observe, it was written by your familiar spirit in his brown study.

TO READ THE LETTERS ON METAL IN THE DARKNESS.

Take a metal plate on which are raised letters, as a medal or coin, preferably silver, however much

and polish the surface very brightly with a fine brush dipped in aquafortis; touch the raised parts, so as to roughen them by its "biting."

If the coin is now placed upon a red-hot iron, in a dark room, the inscription upon it will become less luminous than the rest, so that it may be distinctly read by the spectator. The rest, or holder, of red-hot iron should be concealed from the observer's eye, both for the purpose of rendering the eye fitter for observing the effect, and of removing all doubt that the inscription is really read without receiving any light from any other body. If, in place of polishing the depressed parts, and roughening its raised parts, we reverse that process, the inscription will show up more luminously than the depressed parts.

TO CUT GLASS WITH FIRE, WATER, &c.

1st. Take a wine-glass, rather thick, without a pattern breaking its surface, and apply to its edge a slow match (such as miners use), lighted, till a crack is made there. Beginning at this crack, trace a line with the match down around the glass so that it will end at the stem, and you will make of the glass a sort of ribbon, which will open out when you hold the glass mouth down, but close of its own weight when set on its foot. Glass tubes can be cut in the same way, or by nicking them with a file and tracing the line of disjunction with a red-hot pointed iron.

2nd. Though you cannot cut glass ordinarily with scissors without its flying to shivers, you can succeed tolerably well if you will hold the scissors and the glass under water. *Note.*—This is an old experiment, and we find, on trial, that the diversity in making glass excludes a general application of the principle. Some glass cuts

thus quite regularly; others divide for an inch correctly, and then split off right and left of the shears.

3rd. Soak cotton cord in spirits of turpentine, coal oil, or similar inflammable fluid; wind it round the neck of a bottle, and set it afire. Or wind a red-hot wire round the place; if the glass does not crack at once, throw cold water on the point, and it will fly asunder.

TO BORE A HOLE IN GLASS.

You can employ this preparation: Put into a bottle sixty grains each of essential salts of lemon in powder, and of red sandal-wood in powder, and one ounce of spirits of turpentine; cork tightly. On pouring a little on the part of the glass to be pierced, it will soften it, so that you can drive a graver or drill through it.

MINIATURE OAK.

This proceeding is analogous to that by which hyacinths are grown. Hang an acorn by a thread within a bottle to within all but touching some water; in a few months the germ will appear, strike a root in the water, and send up a pretty little green-leaved stalk. If you change the water now and then, the dwarf will thrive more than a year.

TO GROW DIFFERENT FLOWERS ON THE SAME STALK.

Take the pith out of an elder-branch; split it lengthwise, and fill each part with various seeds; sprinkle mould around them, and, tying each end of the wood, stand it in a flower-pot. The flower-stalks will be so

blended as to seem but one stem, though they will send out the leaves and blossoms proper to them. By selecting such plants as sprout at the same time and have similar stalks, the shoots will be singular.

TO DRINK THREE LIQUIDS SEPARATELY OUT OF THE SAME GLASS.

One-third fill a champagne glass with a strong syrup of white sugar and water; pour in carefully some milk, which will float on the syrup; then on top of that put some port wine, which will float on the milk. You drink either of the lower liquids without disturbing the wine by taking a straw and putting it carefully into either the milk or wine, and sucking up through.

CHANGE OF COLOURS.

Into a bottle put one ounce of quicklime and two drams of sal ammoniac. Let there be a hole in the stopper through which the stem of a flower can be passed. Put in this cork with the flower hanging down, and the fumes will alter the colours curiously.

CHANGES BY AMMONIA.

The change produced in the colour of some flowers, such as the rose and phlox, by the fumes of tobacco, is entirely due to the ammonia which it contains. The yellows, dark violets, and reds remain unchanged by lengthened exposure to ammonia, excepting the red of the zinnia, which is converted into a brown-red. Blue is sometimes unaltered, sometimes converted to a dirty green and then bleached. The changes are generally

the same as those that take place during the withering of the flower. The lengths of the time of exposure may vary from fifteen minutes to ten hours.

TO BLEACH VIOLETS.

Exposure to chlorine gas will turn dark violets into white ones.

TO COLOUR FLOWERS AND IMMORTELLES.

Flowers are dyed green by dipping them in vinegar put in a copper vessel with a pinch of salt, or in a solution of tartrate of potash—the salt by combination of tartaric acid and potash. Immortelles of a violet hue are stained citron colour by immersion in weakened nitric, sulphuric, or muriatic acid, or by exposure to sulphur vapours; long exposure to these fumes turns them a lovely jet black. After all these actions of acids, they are to be passed through water.

TO MAKE SKELETON LEAVES

In one quart of pure spring water put a table-spoonful of chloride of lime in a liquid state. Soak the leaves in this solution for about four hours; take them out and wash them in clear water; dry under a plate of glass in the sun, and exposed to the open air.

TO KEEP CUT FLOWERS FRESH.

A little salt added to the water in which the cut stalks are immersed, or charcoal in fine powder, will preserve them longer than otherwise they would keep unfaded.

TO REVIVE FADED FLOWERS.

Cut off half an inch at the end of their stems, and plunge the stalks into boiling water. *White* flowers, however, turn yellow. Giving them fresh water, and covering them with a glass shade, will also delay their decay.

CURIOUS EXPERIMENT WITH A TULIP.

The bulb of a tulip in every respect resembles buds, except in its being produced under ground, and includes the leaves and flowers, in miniature, which are to be expanded in the ensuing spring. By cautiously cutting, in the early spring, through the concentric coats of a tulip root, from the top to the base down, and taking them off successively, the whole flower of the next summer's tulip is beautifully seen by the naked eye, with its petals, pistil, and stamens.

TO PRINT DESIGNS ON FRUIT.

Cut out of paper or very thin metal any shapes you fancy, and glue them on with white of egg to green apples, peaches, or any such fruit as change colour when ripe. The sun will redden the unprotected parts, and leave the others light-hued. You should make several patterns in quantity, in case the first applied fall off; they may even be varnished to resist the wet, and a little wooden cap could be hung over them to keep off the rain, but let the sun get fully at them.

CURIOUS EXPERIMENTS WITH A ROSE.

A rose exposed to the fumes of sulphur will lose its colour, but resume it after five or six hours, by the

of unaffected sap to the spots injured. If the vapour only acts on the tips of the petals, there will be a variegated bloom. If you write with a solution of soda on this bleached part, the lines will appear in emerald green; if with nitric or sulphuric acid, diluted with water, the lines will be red.

LACE PATTERNS ON LEAVES OF TREES

Cut with scissors any sort of shape, as letters, scroll-work, stars, crosses, &c., out of paper. Lay a large leaf of the form most in accordance with your pattern on the table, spread the design on it, and, with a hard, close-set brush, strike the leaf, which will drive the cellular tissue out between the nerves. All of the network of fibre being thus laid bare, except where the paper preserved them, your design will appear solid on a ground of open-work. A little patient practice will give you much dexterity in this recreation.





EGG TRICKS.

TO TAKE HALF A DOZEN EGGS FROM A PERSON'S MOUTH.

You are in want of an egg, nut, or lemon, for an experiment, and, finally, your eyes settle on your assistant. Going to him, dish in hand, you make him stand upright, holding his head erect.

Show that you have nothing in your right hand; your left holds the dish, but in its sleeve is a case of five or six eggs, constructed to press them tightly enough to let none drop out at the mouth, but to let the others move to the mouth on one being drawn out. You carry your hand to the man's mouth, and he, who has an egg within it, pushes it out with his tongue bent up behind it. In your hand you hold an egg taken from the case; in abstracting the visible egg from between his lips

you push in the concealed one. Put the egg on the plate, and, taking another, unperceived, as before, repeat this operation.

THE VIVIFIED EGG.

Dilute muriatic acid in water, and into the vessel put an egg. After it sinks, you will pretend to whistle for it, when, as bubbles of carbonic acid gas will have gathered on it, it will float to the surface. As other bubbles form on the under side they will make the egg turn and revolve in an amusing manner.

THE AIR-GUN IN AN EGG.

Cut off the top of the small end of an egg, so as to remove both skin and shell, and put it under the receiver of an air-pump stand. Exhaust the air, and all the contents of the egg will be blown out by the expansion of the air-bubble at the big end.

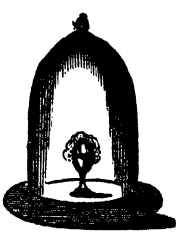


Fig. 12.

THE RESTLESS EGG.

Pour a little vitriol into an empty eggshell, stop up the hole with wax, and it will presently be agitated in a diverting manner.

THE THIRSTY EGG.

Put a live leech in an empty eggshell, and stop up the hole by which it entered, with wax; place it near a pool of water, and it will roll into it.

THE EGG BOMBSHELL.

Empty an egg, by making a puncture at each end and blowing the contents out. Fill it with equal quantities of quicklime and live sulphur; stop up the holes with shoemaker's wax, throw the shell into a lake or stream, and see the results.

THE DIVING AND SWIMMING EGG.

Fill one tall glass with water, and another half fill with strong brine, upon which you gently pour, without a shock, some clear water, up to the brim. Show two eggs, and observe that it is very curious that the egg of the hen has such very different properties to that of water-fowl; and, putting one egg in the pure water, it will sink, but the other, put in the second glass, will swim half-way. Then say that, though it floats in this vessel, it will obey you by diving in the other, and it will imitate the other egg by going to the bottom.



Fig. 13.

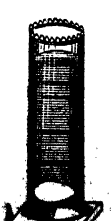


Fig. 14.

TO MAKE AN EGG STAND UPRIGHT.

The Columbian Method: Crack the big end a little, so as to give the egg a broad base, is a subterfuge. Therefore we give in the next trick a better way to accomplish the feat.

TO MAKE AN UNBROKEN EGG STAND ON ITS POINT.

Shake it violently, so that the mixed yolk and white will make the centre of gravity of the egg lie in the line of direction, and set it on its small end on a plane surface, such as a looking-glass.

TO DESIGN IN RELIEF ON AN EGG.

Choose a thick-shelled egg, which you wash in fresh water, and dry carefully with a towel. Melt a little mutton tallow, or other fat, in a spoon, and use it on a new quill to draw a comic face, or whatever else you will, on the shell. Take it up by a finger at each end, and gently lower it into a cupful of strong white vinegar (as most vinegar of commerce now-a-days is acid, we need not recommend *that*, in case the vinegar is weak). In about four hours the eggshell will be corroded where the grease has not protected.

THE ACROBATIC EGG.

You offer to make an egg leap from one wine-glass into one touching it, without yourself or a confederate laying a finger or any tangible substance on it or the glasses. Blowing strongly against one side of the

egg will make it tumble up over into the other glass. Repeat the effort, and it will return, like a cup and ball performance.

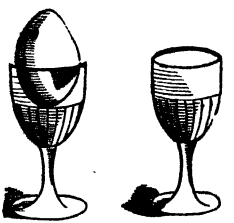


Fig. 15.

TO FIND A LIVE BIRD IN AN EGG FREELY CHOSEN.

Having three eggs upon your table, say those left from a number used in making an omelette in a hat, you ask the company to select one, which, on being broken, lets out a live bird. Take it up, pressing its wings smoothly against its sides, and pretend to throw it away upwards, but really you pocket it, the audience following the direction of your eyes, for you look up as if after it. Shortly after, in taking some article off your table, the same bird jumps up.

Explanation.—Empty two eggs, take the half of each shell, and so you can make, by joining them, a new shell, by gumming a band of thin but strong white paper around the juncture. This forms an enclosure for a live bird, always providing that a couple of pin-holes are made to let it breathe; but not too large punctures, for I remember a case when a conjuring friend of mine, M. Godefroi Saint Ruc, was much embarrassed by a too active canary thrusting his bill

through the air-hole, and showing his impudent head prematurely.

To prevent any possible failure in this feat, you could have a bird in each of the eggs one is selected from; but it will be found that one will suffice. Place it nearest the person who chooses, who will naturally take it, because, having no idea of the trick in contemplation, he has no reason to point to the other one; nevertheless, if the law of chances should cause his deciding on the one untampered with, you have only to break it, saying, "You see that it is a fresh egg, and no error about it. So with this other, if you had chosen it. Now, shall it be a mouse or a canary in this egg?" If, which is very unlikely where ladies are, the majority should say "Mouse!" do not be daunted.

If, after all our instructions, your native wit supplies nothing better, pay no attention to the *mouse-philes*, but crack the egg and liberate the bird.

THE DODO'S EGG.

It is possible that one of the friends who come to dine at your house is of a curious turn of mind, and would be pleased to see an egg as much surpassing even an ostrich's in size as that does a plover's. By all means give him the gratification, by showing him the result of the following process:—

Break a dozen eggs, the yellows of which you put in one pipkin and the whites in another, preserving the shells in a similar *new* earthen pot. Mix the yolks up well and pour into a bladder, which you will tie up tightly and leave in water till they set or harden as if boiled hard. Take this ball and put it, without its covering, in a larger bladder, with the mixed whites poured in around it, and tie this up compactly in the

shape of an egg. Boil it hard, taking care to keep it turning, so that the yellow will remain in the middle, and not settle on one side. Meanwhile, soak the egg-shells in strong vinegar for about a day, when they will become a sort of paste, with which you can cover the boiled mass (from which the bladder has been removed, as before), using a brush. Put the whole in rain-water for twenty-four hours, when the shell will be hard, and your mammoth egg complete.

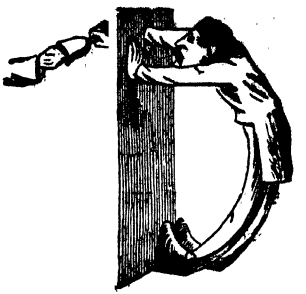
TO TELL A COOKED FROM A RAW EGG.

You may *pretend* to decide on the rawness of an egg in a number of ways; but truthfully to declare, you will have to spin it. The boiled, or solid one, will spin like a top, but the raw one will "wobble," and so betray its inner liquidness.

THE IMPOSSIBLE OMELET.

One of the party boasting of his knowledge of cookery, defy him to make an omelet in the French or any other style, though he is given all the ingredients. By presenting him eggs which have been hard boiled, he will have a *poser*.





THE MAGIC OF ACOUSTICS.

WONDERS OF SOUND.

If a deaf man, or one who stops one of his ears with his finger, stops the other also by pressing it against the end of a long stick, and a watch be applied to the opposite end of the stick, or piece of timber, even forty feet long, the beating of the watch will be distinctly heard; whereas, in the usual way, it can scarcely be heard at the distance of twenty feet. The same effect will take place if he stops both his ears with his hands, and rests his teeth, his temple, or the gristly part of one of his ears against the end of a stick. Instead of a watch, a gentle scratch may be made at one end of a pole or rod, and the person who keeps his ear in close contact with the other end of the pole will hear it very plainly. Thus, persons who are dull of hearing may, by applying their teeth to some part of a harpsichord, or other sounding body, hear the sound much better than otherwise.

If a wooden rod, or other good conductor of sound, is passed up through a floor between two rooms, and a guitar, violin, or other musical sounding case be placed on the upper end, it will respond clearly to music played at the other termination.

TO PLAY THE FLUTE WITH A TUNING-FORK.

On one of the prongs of a tuning-fork fasten a piece of card of the size and shape of a wafer, which will cover the orifice of a pipe (the opening at the upper end of a flute, for instance, with the mouthpiece stopped up). Tune the pipe or tube in unison with a C fork, loaded to make it agree. Strike the fork and hold the card over the pipe mouth.

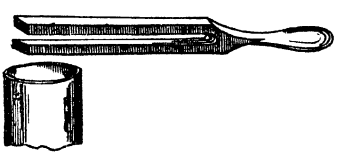


Fig. 16.

The pipe will send out a clear, strong note. In the case of a flute, the notes can be sounded by lifting the fingering-stop for the note required.

EFFERVESCENCE KILLING SOUNDS.

Into a glass which is sonorous, pour some ginger-beer, soda-water, champagne, champagne-cider, or other effervescent liquor, when the stroke on the rim will elicit only a dead sound. When the beer, however, has become flat, the glass will ring as before. Stir the beer

again, and while an air-bubble remains the sound will again be killed. To revive soda-water, stir it with a stick; to revive champagne, put a crumb of bread into it.

TO TUNE A STRINGED INSTRUMENT MECHANICALLY.

On one string set a saddle of paper, in the shape of a letter V, upside down. On sounding the next string, its vibrations will act on the saddled one, even so strongly as to shake the saddle off. When both strings are in harmony, the paper will remain motionless, or nearly so.

THE CHARCOAL BELLS.

A bell of wood does not send out an agreeable sound; but if you exposè it to the vapour of bisulphide of carbon, it will sound metallic, because the cellular tissues are filled with carbon, to the exclusion of the oxygen and hydrogen previously in them.

MUSICAL FIGURES RESULTING FROM SOUND.

Cover the mouth of a wine-glass with a thin skin and a layer of fine sand. The vibrations excited in the air by the sound of a musical instrument, held within a few inches of the membrane, will form the sand on its surface in regular lines and figures with astonishing celerity, which vary with the sound produced.

In the like manner, if a fiddle-bow be drawn against the edge of a glass goblet, two parts filled with coloured water, the surface will show a pleasing figure, composed of half a dozen fans, or more, if the vessel is large enough, but also affected by the pitch of the note produced.

WHISPERING GALLERIES.

Round or elliptical rooms are the best shaped for this experiment. Turn your face to the wall, and whisper, when you will be heard more distinctly half round the room than if the listener was near by.

THE ÆOLIAN HARP.

In a long, narrow, thin deal box, six inches deep, an inch and a half circle in the centre of the top side is described, within which you drill small holes. Stretch seven or more fine catgut strings over this circle, on bridges at each end, like violin string supports, and fasten to screw pegs. Tune them all to the same note, as the upper string to the upper D, and the lower to the lower D, and so on. Place the instrument in a window partly open, as wide as the harp-box is long. When the wind strikes the strings, it will produce harmonic sounds, in varying tones and force.

THE INVISIBLE GIRL.

This machine, reproduced in later times under other titles, to bewilder the grandsons of the periwig-and-powder generation, is so constructed that the voice of a

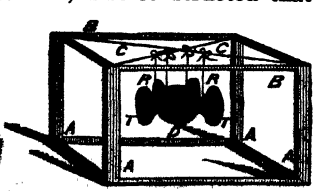


Fig. 17.

female at a distance is heard as if it originated from a hollow globe, not more than a foot in diameter. It

consists of a wooden frame, formed by four uprights, *A A A A*, connected by upper cross rails, *B B*, and similar rails below, while it terminates above in four bent wires, *C C*, proceeding at right angles of the frame, and meeting in a central point. The hollow copper ball, *D*, with four trumpets, *T T*, crossing from it at right angles, hangs in the centre of the frame, being connected with the wires alone by four narrow ribbons, *R R*. The questions are proposed close to the open mouth of one of these trumpets, and the reply is returned through the same. *Explanation.*—A pipe or tube, attached to one of the hollow pillars, is carried into another apartment, in which a female is placed; and this tube, having been carried up the leg or pillar of the instrument to the cross rails, has apertures exactly opposite two of the trumpet mouths; so that what is spoken is immediately answered through a very simple mode of communication.

THE MUSICAL SNAIL.

A garden snail crawling over a pane of glass, lifted off the ground on rests like a sounding-board, will often draw out music akin to that of the harmonicon.

DOUBLE VIBRATION.

Provide two discs of metal or glass, precisely of the same dimensions, and a glass or metal rod; cement them at their centres to the ends of the rod, and strew their upper surfaces with sand. Cause the upper disc to vibrate by a violin bow, and its vibration will be exactly imitated by the lower disc, and the sand strewed over both will arrange itself in precisely the same forms.

MUSICAL NOTES AND NOISES.

Musical notes differ from mere noises only in the circumstance that sounds follow each other rapidly at regular intervals of time. A cogged wheel, revolving slowly, and its teeth beating against a card, will cause only a tapping noise, but when the rapidity of rotation of the wheel is augmented, the fluttering noise rapidly changes into a musical note. The music of the human voice, when engaged in singing, is caused by fine strings placed across an orifice in the throat, which strings cut the air coming out through the orifice into a regular succession of small puffs. These impulses strike the ear of the listener, and the apparatus behind the drum of the ear causes them to coalesce, so as to produce musical sensations.—*Professor Tyndall.*

IMITATION OF THE HUMAN VOICE.

Extract the pith of a piece of cane, elder, or willow, with a bore of about three-fourths of an inch, and a few inches long. Close both ends with a flat plate, with a small hole in the centre. Hold it between the teeth and lips, and on blowing through it the sounds produced will agree in pitch with the force of your exhalation. All the sounds in a double octave may be accomplished by skilful management, and even lower notes may be sounded.

AMUSING NOISES.

If you cover a hearty-voiced cock with a large copper kettle, you will find that his crowing, intensified by the resonant metal, will startle the neighbourhood. A Chinese gong is a mere whispering child beside it.

Hang the tongs by a double thread, of which you roll

the two ends around your forefinger. Stop your ears up, and knock the tongs against something hard, when you will hear a sound which, thus transmitted to the hearing, is singular indeed.

CHIN MUSIC.

A singular sound can be made by opening the mouth slightly, setting the lower jaw firmly, and striking the chin smartly with the knuckles; a little practice will enable you to drum out a tune, lively music being the best to imitate.

IMITATION OF A PICCOLO.

Choose a wine-bottle cork, as free as possible from holes and cracks. Set it between your lips against your teeth, and beat it with the bowls of two spoons, held one in each hand. The peculiar sharp ringing sounds emitted bear a resemblance to the notes of the piccolo. A tune in quick time is the most effective.

WATER SINGING IN A GLASS.

Hold a wine-glass, nearly full of water or other liquid, by the foot in one hand, and draw one of your other fingers, moistened, along the edge of the glass with a steady pressure, when the glass will squeak and the water leap about as if it danced to its own singing.

THE HUMMER.

Take three inches of very thick two-inch lead pipe, which you set up on end as a pedestal or stand. Next obtain a piece of brass, eight inches long, one inch wide,

and a quarter of an inch thick; file away the edges of one of the flat sides till round, so that it will rock to and fro, if it be put in motion upon a table; or you can give it a slight curve *lengthways*, by a few blows with a sledge hammer.

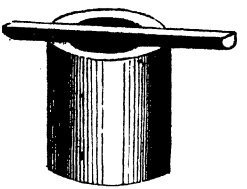


Fig. 18.

Now if one end of this "hummer" be made hot (not quite red hot) in a clear fire, and then laid across the stand, oval side downwards, giving it a slight rock to commence with, it will continue in motion, producing at the same time a peculiar humming sound, which motion and sound will continue until the stand and hummer cool to the same temperature.

BISMARCK'S WHISTLE.

Take an old tin can or cup, through the bottom of which make a hole. A cord is inserted, and fastened by a knot on the end. Resin the string, and hold it by the upper end in the left hand. On drawing the right thumb and finger, enclosing the cord, along it, a peculiarly torturing sound is brought out. This is a modification of the "locust" hereafter described.

TO IMITATE THE SINGING OF A LOCUST.

Take a common wine-bottle, with a mouth half an inch wide, and cut off the top ridge of the neck, about

an inch down, by a diamond, or by this process: fasten the bottle in a vice so that it cannot move, in a horizontal position; wind a piece of strong fishing-line once around its neck, and, holding the ends apart in a straight line, move it so that the hands alternately come to and go from the bottle, so that the friction around the point you want the fracture will heat the glass excessively. Suddenly dash cold water on the place, and the piece will snap off. Rub the broken edge down smooth on a stone on a layer of sand. Take a piece of kid—the large and smooth piece in the back of a lady's glove will do well; soak it in water, and stretch it over the top of the hollow glass cylinder you have made, and fasten it with waxed saddler's silk, so that it will be tight on drying, exactly like a miniature drum. Make four pin-holes in the leather, as in illustration.

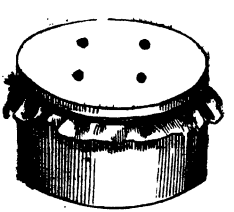


Fig. 19.

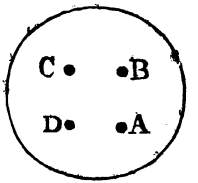


Fig. 20.

Take a piece of horsehair thirty inches long, and, holding one end fast, you pass the other from inside the drum up through the hole A, down through B, under and up through C, and down again through D, when you make the ends fast together. Now take the loops A B and C D, and pull the slack out until the horsehair within the drum is tight, and you have two long doubled lines in your hand, by which the drum is suspended.

Take a piece of stick eight inches long, and make a groove at an inch from one end, from which a string once put into it would not slip. Lay the ends of the two doubled strings together, and bring them down on themselves half way out from the drum, and form a running noose.

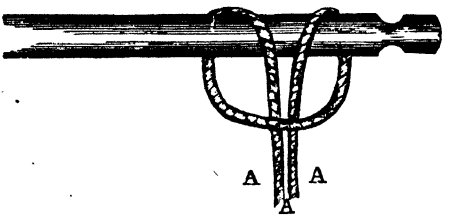


Fig. 21.

We show the way of making the noose with a single doubled string, as the principle is the same with the two. The two lines at the point A (four, of course, with the doubled strings) are pulled out, and the noose is made. Put the noose over the handle so as to be drawn tight in the groove, and moisten the place. The completed instrument looks as in the illustration.

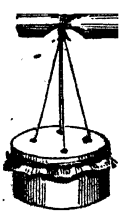


Fig. 22.

To work it, simply swing the drum round, holding the handle steady, and the horsehair turning will make a sound, increased by the vibrations sounding on the

drum, resembling exactly that made by a locust. The faster you swing it round, the shriller will be the sound, the quality of which varies according to the size of the drum. Keep the groove moist, and the drum-leather dry and tight.

On a larger scale, a parchment is to be stretched over a pipkin or other kettledrum-shaped object, while wet, and, when dry, horsehair passed through the skin, as in the above instrument, is to be rubbed up and down between well-resined fingers; the noise is, in proportion, more horrible.

MUSICAL FLAME.

Fit a good cork into a wine-bottle; burn a hole through the cork with a round iron skewer, and into it fix a piece of tobacco-pipe, about eight inches long. Put into the bottle about two or three ounces of zinc, in slips, and pour on it some acid. There will be a tumultuous action of the latter on the metal at first, but as soon as the boiling becomes regular, the cork with the pipe through it may be inserted into the bottle. If a light be placed to the end of the pipe, a flame will be produced, which will continue to burn so long as there is any hydrogen gas resulting from the decomposition of water by the acid and zinc. To be musical, place a glass or metal half-inch pipe about sixteen or eighteen inches long over the flame, and allow the pipe to be about three to five inches up the tube, which will act as a chimney; hold it perfectly steady and upright at a particular distance up the tube, which varies according to the size of the flame. A beautiful sound is thus produced. simi-

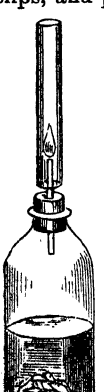


Fig. 23

ar to an organ pipe. This sound, or "musical flame," varies in note according to the diameter of the tube, being deeper or more bass as the tube is increased in size. By using various-sized tubes, different sounds are thus readily produced.

THE SPEAKING STATUE.

This illusion was re-invented by the Marquis of Worcester, but there are many tales in ancient history concerning statues and busts with vocal gifts, undoubtedly founded on the use of apparatus of this sort.

You require two concave reflectors of two feet diameter, set as in figure 24.

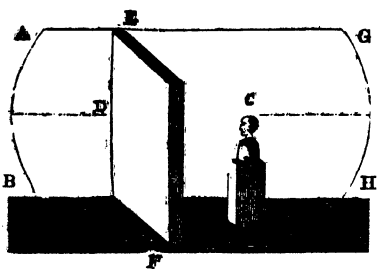


Fig. 24.

A B and G H, the concave reflectors (as you may have concave mirrors for other illusions, they will suffice, or you can make mirrors of such reflectors yourself by covering a pasteboard reflector with gilt paper or Dutch metal), are set perpendicularly diametrically opposed to one another. E F is a partition five or six feet from the reflector A B, in which is an opening of the same size as the reflectors, filled up by D, a cotton sheet on a stretcher, on which is painted a picture in water colours, intended to prevent any one before it sus-

pecting that sound passes freely through it. A couple of feet behind the second partition is the second reflector, G H.

At C stands a pedestal, either of a full-length seated figure in plaster of Paris, or a bust, the ear to be exactly in the focus of reflector A B, say about twenty inches from it. To the jaw, which is movable, fasten a wire, running down unseen through the pedestal, to pull it, and a spring to make it shut when released; a second wire to move the eyes may be employed. These wires lead under the floor to your confederate on the other side of the partition.

You undertake, that to any question put to the statue, an answer will be given by it.

Now, whatever is spoken, even in a whisper, in the ear of the statue, will be heard distinctly by your confederate, if his ear is at the focus of the reflector G H, and if he speaks, the first speaker will hear him at the focus of reflector A B, by the same means.

The reflector A B can be veiled with thin gauze.

A little practice will enable you to move the jaws of the statue in proper agreement with the words of the reply it is supposed itself to utter.

ST. JOHN OF THE GOLDEN MOUTH.

This once famous deception was performed in a less elaborate fashion than that above described. A tube from another room than that where a bust was set on a stand or table, enabled a confederate to reply to questions asked.

TO HEAR A WATCH TICK TWO YARDS DISTANT.

In the same manner as a glass lens enables one to see an object more clearly than the naked eye, so

lens will "bring near" us a sound otherwise inaudible, or but faintly perceptible to the ear.

Fill one of the common captive balloons to be had in the toy-shops with carbonic acid gas, and, placing it between yourself and a going watch, there will be found, by experiment, a point at a distance where the sound is focussed, and is distinctly to be heard.

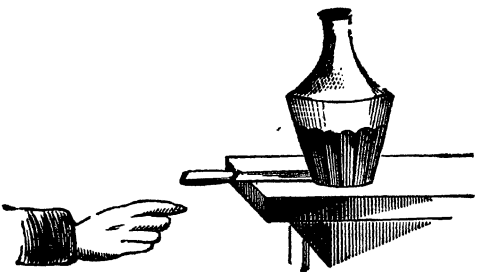
TO TELL THE DISTANCE OF THUNDER.

Allow a little more than five seconds for a mile in reckoning how many seconds elapse between when you see the lightning and hear the thunder. If you have no timepiece, you can tell by the pulse-beats, giving five thousand feet to six beats.

TO BREAK GLASS BY A WORD.

Drinking-glasses have been broken by the singing of the proper note of music in a clear and powerful voice near them; looking-glasses have similarly been shattered by music. If you have suspended in your room a glass globe or "smoke-consumer," you will find, by singing or whistling various notes near it, that it will respond more loudly and clearly to a certain one than to any of the others.





BOTTLE TRICKS.

THE INEXHAUSTIBLE BOTTLE.

In "The Secret Out" we presented the reader ı ample means of performing this well-known feat ı the magician's prepared bottle. We here reveal chemical changes, founded on the procedure of tes for lead, iron, and sulphuric acid, by which a surprise is given.

You undertake to pour half-a-dozen different liqu as sherry, milk, blue ink, champagne, port, &c., fi the same bottle.

Preparation.—The bottle: Take a common wi bottle, well washed, and into it put two tea-spoonfuls a strong solution of perchloride of iron and one of oil vitriol. 1st glass, sherry; one drop of sulphocyan of potassium in solution. 2nd glass, port; three or fc drops of the same. 3rd glass, blue ink; two drops

solution of ferro-prussiate of potash. 4th glass, champagne; a few crystals of bicarbonate of potash, or a few drops of a strong solution of the same. 5th glass, milk; three drops of a strong solution of acetate of lead. Let the glasses be distinguishable by their pattern or otherwise, and set them on a tray. On a second tray must be as many glasses, each containing real milk, sherry, port, champagne, blue ink, hidden on the shelf behind your magician's table.

Performance.—Show that the bottle is empty by pouring into it rain or distilled water from a common water-bottle or jug; pour out of the bottle into a glass to prove, by its being colourless, that it is water still. Say, "Change to sherry!" and pour into the first glass; "Change to port," and into the second glass; and so with the rest.

Note.—Put the mouth of the bottle to the edge of the glass as you pour, so that no one can see where the change occurs, and hold the glass shoulder high at the same time. As the liquors are poisonous, you must, as you go to the audience to have them inspected, substitute the duplicate tray and its glasses.

TO EXTRACT A CORK FROM A BOTTLE WITHOUT TOUCHING IT.

Showing a bottle full of water with the cork so tightly driven in that the top of it is flush with the rim of the neck, you undertake to extract the cork without touching it or injuring the bottle. To do so, wrap a round the body of the bottle, and strike the , thus protected, against something immovable; will act as a solid body and force out the

MUSICAL BOTTLES.

Take two glass bottles, and, by pouring water into them, tune them each to correspond to the sound of a tuning-fork. Apply both tuning-forks to the mouth of each bottle, one after the other, and the sound will be reciprocated only by that bottle which agrees with its note, it being the one with that column of air capable of vibrating in unison with the fork.

THE BOTTLE OF EMPTINESS PUTTING OUT A CANDLE.

Let some carbonic acid gas (*a poison*) be in a bottle, where it is invisible, and can be invisibly poured out on the flame of a candle, burning within a glass jar, and it will extinguish it.

THE BAROMETER BOTTLE.

In a glass bottle, nearly full of water, put one or two leeches; cover the mouth with coarse linen. When the weather changes from dry to wet the animals will go up or come down, and will come to the top when a thunder-storm impends. Change the water twice a week. Frogs are similarly made to be weather indicators, by giving them a ladder to mount in the large bottle in which they are kept.

THE PNEUMATIC BOTTLE.

Into a four-ounce phial put an ounce of water; in the cork sealing-wax a glass tube, which shall reach a little below the water inside, and cork it up air-tight. On plunging the bottle into hot water, or holding it in the hand, the water will be driven by the air within the tube.

THE DEMON BOTTLE OBEYING ONE'S COMMANDS.

There is given to the audience a little bottle, which stands upright, and, if upset, rights itself always. No one can make it lie down. Nevertheless at your word of command the bottle assumes the horizontal position and resists all attempts to make it act as before.

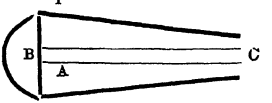


Fig. 25.

Explanation.—A is the bottle made of pith, wood, or a cone of thin metal, at the base of which is half a bullet B. Through its length runs a hole C, which is the same diameter as a steel pin. When the pin is not inserted, the bottle is forced by the weight at the end to stand erect; when it is thrust in, which is done secretly, it counteracts that weight, and the bottle lies down.

MOCK CHAMPAGNE.

Fill a champagne bottle three parts with water, and stop it with a cork, which is bored through its middle



Fig. 26.

and furnished at the lower end with a little valve. Take

NAWAB SALAR JUNG BAHADUR.

a strong pair of bellows, and force air into the bottle, which the valve will prevent coming out, and cover the cork with leather, parchment, or tin-foil, and tie it on firmly with thread or wire. Put on a label of some celebrated brand, and let the bottle be brought to table when you have some great judge of good wine to dinner. Give him a glass and the corkscrew; he will no sooner have broken the fastenings, and the leather, or parchment, than the cork, repelled by the compressed air, will fly up to the ceiling noisily, and your friend, concluding that the wine is in an excellent state, will be very much confused when he tastes of the Adam's ale.

TO TAKE WINE FROM A STOPPERED BOTTLE.

Drill two small holes in a bottle, one at the bottom and another near the neck. Fill up with wine, while keeping your finger on the upper opening, just as a gunner presses his thumb to the touch-hole of a cannon when it is being loaded. Set the bottle on a salver perforated with small holes conducting into a receptacle, and, on your taking away your hand, the wine will flow away.

A FOUNTAIN IN A BOTTLE.

Take a glass tube with one end smaller than the other. Bore a hole in the stopper of a bottle to let the tube go into it tightly, leaving the smaller end up. The bottle is to be two-thirds filled with water, and the tube must not go quite to the bottom. Blow forcibly down the tube into the bottle, and, on quickly removing your mouth, water will spout out as long as there is any left within.

THE BOTTLES OF SMOKE.

Rinse out one bottle with spirits of salt, and a second with hartshorn (ammonia). Put the mouths together, and the two invisible exhalations being converted into sal-ammoniac, the bottles will fill with white vapour.

THE BOTTLE OF MOONSHINE.

Half fill a thin bottle with Florence oil; put in a piece of phosphorus as big as two peas. Boil in water to heat the oil. Shake till the phosphorus is dissolved. Cork tightly. To use it, uncork and shake the bottle.

THE BALLOON IN A BOTTLE.

Let a bubble of glass be blown a few inches in diameter, with the end drawn out and turned up into a hook.

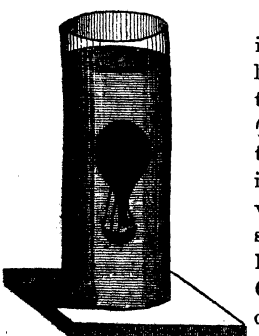
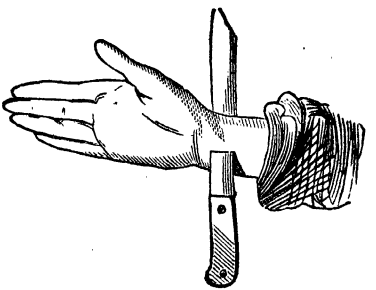


Fig. 27.

At the bend, while the glass is warm, drill a small hole to let the water in and out. Fasten a little basket of glass (such as are sold at toy-shops) to the balloon for a car. Place it in a glass jar nearly full of water, and weight it with a shot or two, so that the balloon will just sustain the car. Over the mouth fasten a piece of parchment, bladder, or sheet india-rubber, smoothly. When you press on the cover will descend, and rise when you remove your figure was a demon instead of a balloon you the Bottle Imp," as the feat is then called.



FORTUNE TELLING.

We have in preparation an exhaustive work on this subject, from which the following articles are extracts. They serve to show, on the one hand, how simple are the means by which even the acute can be deceived, and, on the other, by what insignificant occurrences superstitious people deceive themselves.

THE WAND OF DIVINATION.

Ten or twelve boxes are given to the audience, with the request for a half-crown or florin to be put in one of them. They are then all to be placed on the table, where, on presenting to each of them a wand held on the two forefingers, the box containing the coin will so affect the wand that it will turn rapidly.

Explanation.—Each box ought to have a false
in the lid, pressing on a weak spring, so
coin is within a tiny knob or nail
little, while otherwise imperceptible.
which box is the coin.

MANAGEMENT OF THE WAND, OR DIVINING ROD.

In former days the movement, apparently instinctive, of such a rod, was believed in, as truly indicating the presence in the ground of a buried treasure, a subterranean spring, or even the abode or hiding-place of a criminal. Yet it was all done by the manipulation of the holder of the rod, extravagantly styled the Caduceus, the Rod of Aaron, the Wand of Jacob, the gleaming, the ardent, the transcendental, the tremulous, the superior rod. By sheer cunning discoveries were announced, such as choosing spots where grass grew green in drought, to proclaim the existence of an unseen spring, and revealing those treasures which an accomplice had previously buried.

Take a couple of feet of willow, or other wood, uniformly thick, somewhat pliant, round, and well polished, and bend it so as to describe part of a circle, four feet across. Bind it with three metal rings at each end and in the middle, to make it weightier, and, consequently, more easily kept in motion. Now lay it on your two forefingers, placed horizontally, so that the two resting-places are near the tips of the wand, when the middle will be below the level of the two ends. But, on bringing your forefingers slowly towards each other, you will see the middle of the rod rise, and the two ends fall; then, if you return your hands to their former places, the rod takes its first position. By such successive movements the rod can be made to keep in agitation, and practice will give you facility without your hands seeming to stir. The main point is to avoid friction, which can be done by making the rod thin, and by letting it rest on that part of your fingers which offers the least surface.

The movement of your hands can become less perceptible still if you rest the wand on two brass wires, a

little bent, held one in each hand; being round and smooth, the point of support being inappreciably slight, friction is nearly obliterated. Should your tremor of the hands be remarked upon, say, boldly, that in sorcery it is attributed to the metallic or moist emanations from veins of ore, or from water, or from sympathy with the object you pretend to seek.

FORTUNE TELLING BY CANDLES.

Stand three candles, of different sizes, on a clock-stand, covered by a glass shade, fitting into a groove in the stand. Light the candles, and pour a little water to fill the groove and exclude the air. A person is to choose one of the candles as the representative of his wish, and it is arranged that if it burns longest he will have it gratified. He will probably select the largest, as most likely to outlast the others; but on the contrary, for it will go out for want of air first, and the smallest will burn to the last. Therefore you can safely declare the answer to the wish. (Southey's poem on this mode of divination, applied to choosing names, will occur to the reader)

Variation.—It has been observed that, of the coloured tapers sold by oilmen, those of a *red* colour burn for a shorter time than those which are *green*, the wick, indeed, of the latter continuing to glow for some time after the light has been blown out. Therefore red tapers are safer than green ones, which might cause an incendiary if left about when imperfectly extinguished.

THE HINDOO ORACLE.

On a piece of wood float a lighted candle on a flowing stream; if it swims until out of sight, all presages a kind fate; if upset, the reverse.

TO TELL WHAT IS WRITTEN ON A SLIP OF PAPER ROLLED UP INTO A BALL AND MINGLED WITH OTHER SIMILAR BALLS OF PAPER.

With a trap table, and a little quickness in *palming*, this astounding feat can be executed.

Taking ten or twelve slips of paper exactly alike, you give them to the experimenting person, with remarks upon the marvels of *Aleuromancy*, for which test of the future the ancients used to write different answers on papers, roll them up into balls, which, being mingled with flour, were drawn at random, and read as oracles. In the same manner he is to write a name on each, only one of which he wishes to be called out. He rolls up each bit of paper into a ball, and puts them on your table. You pass your hand mysteriously over them, scooping them up into a heap upon your trap, where they fall in—while you substitute for them, upon the table, the same number of similar balls of paper, previously in readiness.

Having thus juggled away the original papers, you go on with another trick, which enables you to get the papers from the receptacle, unroll, and read them. As a rule, that name which the person defies your discovering will be found to have been written more firmly, more plainly, and more completely than any of the others.

Then, taking your wand and *the* paper, again rolled up, you wave your hand again over the table, and pretend, after knocking several of the balls away, to see the right one. Taking it up, you pass it into your pocket, but show the real paper as if the same. Unfolding it, you read, and ask the person if you have not really found it, which he cannot deny.

THE NUMERICAL FORTUNE TELLER.

Rule six cards as in the following diagrams, and fill in the figures.

You offer to tell the number thought by any person, the numbers being contained in the cards, and such number not to exceed 60.

3	5	7	9	11	1
13	15	17	19	21	23
25	27	29	31	33	35
37	39	41	43	45	47
49	51	53	55	57	59

5	6	7	13	12	4
14	15	20	21	22	23
28	29	30	31	36	37
52	38	39	44	45	46
47	53	54	55	60	13

9	10	11	12	13	8
14	15	24	25	26	27
28	29	30	31	40	41
42	43	44	45	46	47
56	57	58	59	60	13

3	6	7	10	11	2
14	15	18	19	22	23
26	27	30	31	34	35
38	39	42	43	46	47
50	51	54	55	58	59

17	18	19	20	21	16
22	23	24	25	26	27
28	29	30	31	48	49
50	51	52	53	54	55
56	57	58	59	30	60

33	34	35	36	37	32
38	39	40	41	42	43
44	45	46	47	48	49
50	51	52	53	54	55
56	57	58	59	60	41

Ask the person to tell you the cards containing the number, and then add the right-hand upper corner

figures together, and the sum will be the answer. *Example.*—Let 10 be the number thought of, when, as the cards with 2 and 8 in their corners will be chosen, their sum must amount to 10, which is correct.

THE MIRACLE OF JANUARIUS.

Bottle up some sulphuric ether, tinged red with orchid dye, and add spermaceti, so that the mass becomes solid; at least it will be solid at a temperature of ten degrees above freezing point, but thaws out and boils at twenty degrees. Let a person ask a question, whilst holding this phial, and let the answer you please to give him on it depend affirmatively or negatively on the solid substance liquefying. In a few minutes the change will occur.

This is the chemical explanation of the Miracle of St. Januarius, which occurs in the Cathedral at Naples, the scientific mind never attributing results to supernatural causes when there are natural ones of the same power.

FORTUNE TELLING BY BOOK AND KEY.

In the days of superstition, one of the means of peeping into the future was through the medium of a book which was suspended on a key, by the wards being bound up in it; and while the handle of the key rested on two persons' fingers, the book would answer the question affirmatively by moving of its own accord. The book, a large one for a street-door key, and an octavo volume for a room-door key, is opened in the middle, and a key half laid in it; close it, and bind it tightly with tape or string. One person makes the experiment by putting the forefinger of the *heart* hand, *i.e.*, the left, in the ring of the key, and asks the question.

Two persons hold it resting on the index fingers of the left hands, care being taken to allow space enough for the key to turn. In a short time the key will turn half round, that is, will become at right angles to its former position, by the involuntary muscular and nervous action of the holders. But it may be influenced by the will, as proved by the following experiments:—

Fix on a name which both parties know, say Alice; repeat the letters of the alphabet at intervals, by the watch, of five seconds; the key will turn at the first letter. Replace the key, and by the same process the key will move at the letter B, the name Bessie being fixed on. If one of the persons only know the name, the key will still turn, but more slowly and hesitatingly, proving that the influence of the will of two is more powerful than that of one; where neither, but a third person present knows the name, the key will not turn with certainty, thus proving that it is merely a scientific experiment, and useless for purposes of fortune telling.

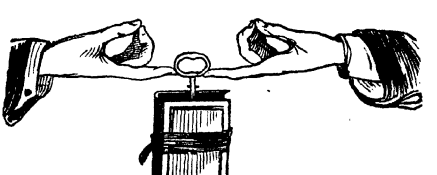


Fig. 28.

BOOK DIVINATION.

Among the ancients this was popular; but, on account of the few volumes, even of manuscripts, being un-

attainable by the masses, it was practised by the inquirer listening for a passage to be read out of a book. Among the Hebrews, the Talmud, the Bible, and other important scriptures were consulted. In later times, Virgil was a favourite, particularly because he has always borne the reputation of a magician among the vulgar. Reverence for the Bible has shielded it from such profanation in our days, but the classics are often referred to for such guidance as chance lines afford by many University men, who in public scoff at such superstition. Shakspeare furnishes much sport for a dull hour in a large company, as, in fact, will any work containing brief lines applicable to human beings and their lives, by liberal interpretation.

The mode is simply to open the book at random, and read whatever paragraph your eyes first light upon.

THE PROPHET, OR SYBIL.

Make a circle of pasteboard some inches in diameter, and cover it with fancy paper at the edges, and with white on top. Divide the surface into twenty or more parts, by lines converging to the centre, and within each write a number corresponding with the following table of answers, mottoes, or proverbs of advice; or write these answers themselves.—

Answers.

1. At the end of a changeful life, wealth.
2. Early and prosperous marriage.
3. Many lovers, but no husband.
4. A speedy and important journey.
5. Rich by a legacy.
6. Hours of pleasure, years of care.
7. He is false.
8. You will marry your present choice.

9. Wed thrice, and die in widowhood.
10. Travels by land, voyages on sea.
11. If not wed now, never.
12. It will be your ruin.
13. Happiness in wedlock.
14. Change in love soon.
15. Long life and a merry one.
16. Fears from a rival, but you will succeed.
17. Beware of a false friend.
18. Twice wed.
19. Unhappy ere long, but the sunshine follows.
20. Your present lover will not be your mate.

In the centre of the board run up a straight piece of steel wire, on which shall turn a figure of wood, cardboard, or other material, holding in one hand a wand pointing downwards. This figure is spun round, and that answer is read agreeing with the number the wand stops at.

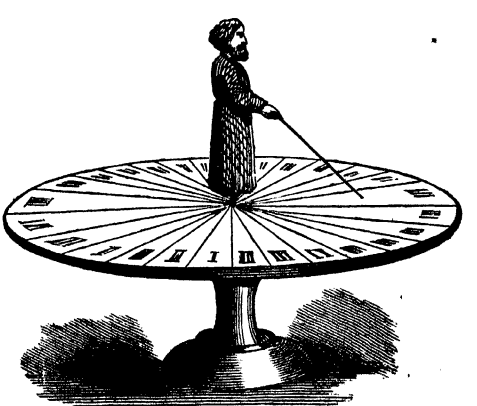


Fig. 29.

THE EGYPTIAN INK TRICK.

On the palm of your left hand trace, in Indian ink, the outline of a square, say two inches wide; inside it draw another square, half an inch smaller; fill the space between them with mock Arabic or Chinese characters. In the centre of the inner square put one drop of ink; in this globe, which reflects like a convex mirror, you pretend to see the inquirer's future. In this, as in all feats of the like, you must be prepared beforehand with real knowledge of the person's circumstances, relations, &c.

THE MAGIC SQUARE ORACULUM.

Make a magic square of eleven, with one in the centre, as here given:—

117	118	119	120	121	82	83	84	85	86	87
116	78	79	80	81	50	51	52	53	54	88
115	77	47	48	49	26	27	28	29	55	89
114	76	46	24	25	10	11	12	30	56	90
113	75	45	23	9	2	3	13	31	57	91
112	74	44	22	8	1	4	14	32	58	92
111	73	43	21	7	6	5	15	33	59	93
110	72	42	20	19	18	17	16	34	60	94
109	71	41	40	39	38	37	36	35	61	95
108	70	69	68	67	66	65	64	63	62	96
107	106	105	104	103	102	101	100	99	98	97

The squares should be each an inch, and the whole marked plainly on a board. To consult it, the inquirer thinks of a number, or opens a paged book at random, to find a number; refer to the list below of numbers, and its answer is the one ordained.

List of Answers.

1. A bird in the hand is worth, &c.
2. Where is one so happy as at home?
3. Friday, wry day.
4. Peace where there is no peace.
5. One may be rich, and yet not happy.
6. Fry other fish.
7. Never promise what you can't perform.
8. A life of changes, but ends in riches.
9. Two long journeys.
10. A raven does not peck at another.
11. The brighter the sun, the brighter the daughters.
12. Be content with little.
13. Once at lotteries win, nevermore spin.
14. Nothing is constant under the sun.
15. Marry in haste, at leisure repent.
16. A good child gladdens parents' hearts.
17. Man is deceiver ever.
18. Be more cautious hereafter.
19. A ship is made of many trees.
20. That built even on gold sand, will fall.
21. Love is a well into which men fall.
22. In the evening of life comes *mourning*.
23. Industry wins an estate.
24. You will better yourself by marriage.
25. Losses by fraud.
26. Your mate will be ill-tempered.
27. A sudden rise awaits you.
28. Expect an absent lover.

29. Triumph over many foes.
30. A bad partner, but happy reformation.
31. A speedy proposal of marriage
32. A present, and a new lover.
33. Invitation to a party.
34. A serious quarrel.
35. Unpleasantness.
36. A run of ill-luck.
37. Gifts of gold.
38. A good partner in marriage.
39. Thou shalt be rich.
40. Money through love.
41. Gains in business.
42. A long journey.
43. Expect important news
44. Mind what you say to a lover.
45. A present from a distance.
46. A dispute with one you love.
47. Visit from a distant friend.
48. A lawsuit.
49. Advancement in life.
50. Love at first sight.
51. A prize worth having.
52. Wealth, dignity, honour.
53. Visit to a foreign land.
54. Profit by industry.
55. A multitude of ills.
56. Preferment through a friend.
57. Second partner better than first.
58. Difficulties overcome.
59. A false friend.
60. A pleasing surprise.
61. A change in your affairs.
62. A week at Brighton.
63. Injured by scandal.

64. Unpleasant tidings.
65. Great loss at sea.
66. About to attend a christening.
67. Change of situation.
68. A handsome present soon.
69. An invitation to a marriage.
70. News from sea.
71. Happiness or marriage.
72. Pleasant intelligence from abroad.
73. An agreeable partner.
74. You are in love, though you won't show it.
75. A quarrel with your intended.
76. Disappointment in love.
77. You will fall in love with one already engaged.
78. You will inherit shortly.
79. An unexpected evil.
80. You meditate marriage.
81. A temporary illness.
82. Crosses await you.
83. You have three strings to your bow.
84. You long to be married.
85. Your intended is over forty.
86. A lapful of money.
87. You will marry a widow or widower.
88. You will have few friends, but good ones.
89. You will be married this year.
90. You will break your promise.
91. Marry too slow, and reckon your woe.
92. You are in danger of losing your sweetheart.
93. Beware of changing for the worse.
94. You will have many offers.
95. You will be happy if contented.
96. You will shortly obtain your wish.
97. Lucky at a bargain.
98. You will see your intended on Monday.

99. Others will envy you.
100. Faint heart never won fair lady.
101. Go to law, go to trouble.
102. Forewarned, forearmed.
103. You will not lose much.
104. Alter your intentions.
105. Stay at home.
106. Appearances deceive.
107. They laugh best who laugh last.
108. Rely on yourself.
109. You cannot serve two masters.
110. Sorrow is always near us.
111. Your love wishes for you at this moment.
112. You will not gain by marriage.
113. Misfortune at first.
114. It is hard to get a partner.
115. A nod is as good as a wink.
116. Walls have ears.
117. Enough is as good as a feast.
118. Your lover is fickle.
119. Creep before you walk.
120. Fair and softly goes far.
121. Persevere, for fortune will smile.





SECOND SIGHT.

There are divers means of seeming to give evidence of a power of seeing invisible things, and of them we subjoin the most effective, whilst the easiest of execution.

TO MAKE AN OBJECT DESIRED BY A PERSON APPEAR TO HIM.

Your confederate must be in correspondence with you in an adjoining room, the understanding being (if he cannot see you, when a series of signs would be your mode of communication) that, on hearing you strike one tap on the wall or floor, he will know A is meant; two will signify B, and so on for all the letters of the alphabet. If you spell phonetically, or by the sound, as foto for photo, you can shorten many words. Let the curious person write on a slip of black paper, with chalk, the name

of the animal he desires to behold, and pretend to burn this paper in the flame of a lamp, but really burn in it a paper impregnated with saffron, or salt, or anything which will make the flame change colour to a ghastly hue. Give the lamp to the inquirer, and let him enter another room, darkened. While he leaves you, look at the writing, which, we will suppose, says, C-A-T; then, pretending to be busy with a pestle and mortar bruising the ashes of the paper with some magical powders, you strike three blows, to inform your friend that C begins the word. Rattle the pestle about, to imply a pause; then one blow for A, and so with the T. The confederate, with a phantasmagoria lantern on a screen in the wall, or with a profile of the object in cardboard casting a shadow on the same, makes the person see the grimalkin asked for. It is taken for granted in this scheme that the person will only think of an animal or object likely to be represented in your lantern slides, arranged alphabetically. If you can succeed in having your accomplice go into the room to be the beholder of the apparition, the proceeding amounts to your telegraphing to him, as described, the name of the object written on the paper, and to his returning with a terrified look to assure you all that he had seen a "C-a-t!" Instead of raps, you can suggest to a confederate the proper answer by the way Macallister, Anderson, Heller, and others practise.

CLAIRVOYANCE.

A number of articles are borrowed from among the audience. The clairvoyant, or adept in second sight, is seated in a chair on the stage, blindfolded. You, the performer, from among the audience, ask questions of your agent, and, to the amazement of all, are answered truly. The system exacts that to a certain question only

a certain reply is due. The questions are ordinary ones; but, by the rule of mathematics, even half-a-dozen words can be combined differently in numerous cases. Thus, if you, holding up a watch, ask, "Is this plain or ornamented?" that form must be answered, "Ornamented." If you had put the word "plain" last, that must be the reply. If you say "Plain or ornamented?" the answer would be, "Partly plain, and partly ornamented."

A good memory for the confederate and yourself, and a clever classification, will work wonders.

For Colours, Metals, and Precious Stones.

QUESTION.	COLOUR.	METAL.	STONES.
What colour is it?	Black.	Iron (steel).	Jet.
What is its colour?	Blue.	Lead.	Turquoise.
Tell me the colour.	Green.	Copper.	Emerald.
Has it a colour?	White.	Silver.	Diamond.
Any colour?	Yellow (orange).	Gold(brass).	Topaz.

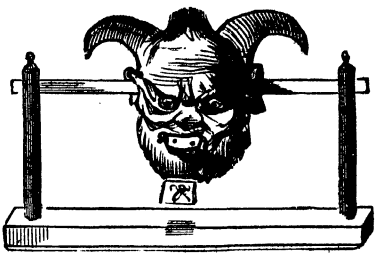
For Miscellaneous Objects.

What do you see?—A handkerchief.
What is this?—A watch.
What is this for?—A toothpick.
What is done with this?—A locket.
What have I now?—A pocket-book.
What do I hold up?—Bank-note.
Who gave me this?—A lady.
Who makes this?—A knife.
Speak out, or louder.—Watchkeys.
Answer more promptly.—Seals and rings.
Is this for use?—Cigar-case.
I cannot hear you.—Half-a-crown.
Tell me at once (*or* now).—A bracelet.

ROBERT HOUDIN'S SECOND SIGHT.

Mr. Houdin supplemented the last plan by having the articles collected from the audience under his eyes for a brief space, but sufficient for his trained eyes to examine them minutely, even so far as to read inscriptions on coins. He also could open a watch with one hand, from having been a watchmaker in early life. His son was very quick, quite equal to Macallister's lady-assistant in older days.





PART II.

TRICKS WITH ARTICLES EASILY OBTAINED, AND WITHOUT ASSISTANCE.

THE MOCK MAGDEBURG EXPERIMENT.

THERE being a cup or tumbler on the table, you reach out your hand to it, and, though your fingers are kept

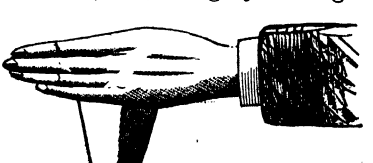


Fig. 30.

extended, you lift up the tumbler, and even hold it thus,

as if glued to your palm. Then, setting the glass down, you make it clear that you had no sticky substance whatever upon the glass or your hand.

In all likelihood some philosopher in the party will recall the Magdeburg experiment of Otto von Guerike, in which two hemispheres of metal, set together to form a globe, from which the air is extracted, become inseparable, though horse power is used to pull them asunder.

But you will boldly assert that, plausible as is that supposition, it scarcely reveals the truth, the rather that, in repeating the performance, you let it be seen that you simply pinch the edge of the tumbler, and hold it fast between the thumb and the base of the forefinger.

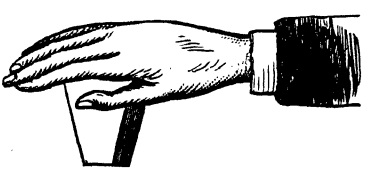


Fig. 31.

Upon which you laughingly avoid confessing your trickery, and attribute it to the animal magnetism inherent in the nerves, and give a proof by performing the feat known as

THE KNIFE UPHELD IN AIR BY MAGNETIC ATTRACTION.

You grasp your right wrist firmly with three fingers of your left hand, while against the palm of your right

a knife (a stick, a rule, or a fork may be used) is supported, though your fingers are outstretched. Then,

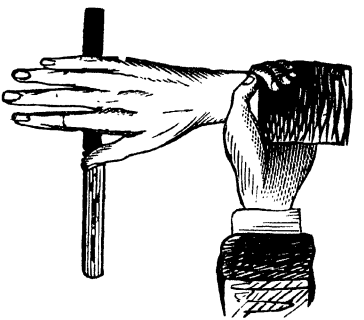


Fig. 32.

turning your hand rapidly upside down, you show that there is nothing visibly supporting it. Only a person

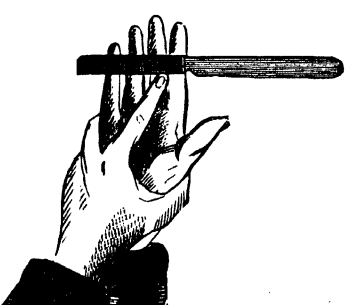


Fig. 33.

who was on your left side could have seen that you held the knife by laying the tip of the left forefinger on it,

covered by your open right hand, which finger you adroitly draw back when you turn the hand palm up.

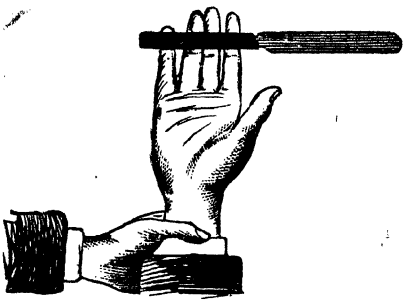


Fig. 34.

Note.—When you turn your hand over and over quickly, you must let the right thumb touch it until relieved by the left forefinger; in the same way as when you hold the knife up free, the right thumb must touch the knife for an instant as you take away the left forefinger. This is easily done, and is never perceived by the spectator, while the apparent effort you make to keep a tight grasp of your wrist seems to demonstrate that the rigidity of the nerves and muscles has much to do with the performance.

TO PERFORM THE SAME FEAT WITH THE OTHER HAND AT A DISTANCE FROM THE WRIST.

Should the trick be discovered, or denied to depend on the pressure of the air or attractive powers of animal magnetism, you can contrive to declare that your other hand had nothing to do with the success of the feat, and

though you grasp your right arm this time half-way up to the elbow, the knife is again supported in air. Not

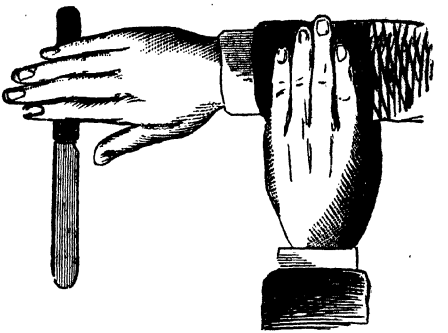


Fig. 35.

only is the left forefinger in plain sight, but it is too far from the right hand to be accused of sustaining the knife. It will be hard but that this will puzzle the sharpest-witted in the party, unless awkwardness lets them see how you acted.

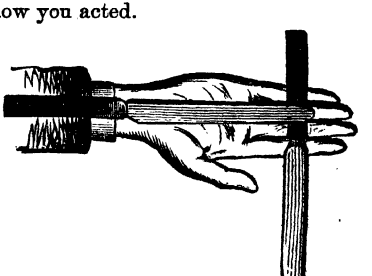


Fig. 36.

THE DANCING RING.

Into a hollow brass ring put some vitreous salt and quicksilver, in equal parts; stop the hole tightly, and

set the ring near the fire. In a few seconds it will hop about merrily. A salamander can be made, on this plan, by wrapping a metal shape like a lizard with asbestos, to form its skin, legs, and tail.

TO SWALLOW A KNIFE.

Having related some little story concerning the digestive powers of the ostrich, take up a closed penknife, and carry it to your mouth, as if to swallow it; but lower your hands for an instant, to finish what you have to say before the experiment; then up with the knife again, and slap your hand holding it with the other, in order to drive it well down your throat, with as many hideous faces as are justified by so disagreeable a pill. In case exclamations of pity prove that your simulation of pain is excellent acting, you need only produce the knife out of your pocket to turn the sorrow into merriment.

Explanation.—You profit by the moment when your hands are resting on the edge of the table to drop the

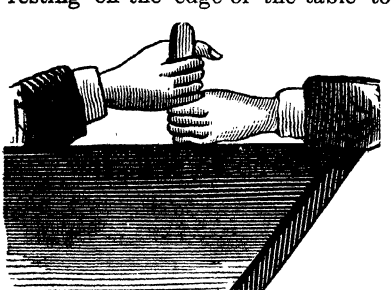


Fig. 37.

knife upon a napkin or handkerchief upon your knees, unnoticed, because, in the first place, the company

believes, from your speech, that you may be able to swallow metal; secondly, this idea is confirmed by the frightful grimaces you make; and, thirdly, because, however suspicious the keenest looker-on may be, he can hardly divine the exact instant when the deception is executed.

The trick is done by means of two pieces of ivory, bone, buckhorn (or whatever your knife-handle is made of), resembling the ends of a closed penknife, and connected by a spiral wire.



Fig. 38.

On letting the real knife fall into your lap, you take in its stead this dummy knife-handle, which is held as represented in figure 37. On putting it to the lips, the right hand compresses it so that it is out of sight altogether. This hand is kept closed, and strikes the left hand, laid across the mouth to conceal the absence of the knife, as if to drive the object down the throat. No one can imagine that the knife could be entirely hidden in one hand, for he takes the cheating handle for the real one, and is naturally obliged to *swallow* the illusion.

Another way.—On taking up the knife, you must wrap it up in opaque paper, such as blue foolscap, on the edge of the table, but really you leave one end of the wrapper open, out through which to slip the knife, as before, into your lap. Now, on the paper being moulded into the shape of the knife, its stiffness causes it to retain that form, and you can fearlessly put the paper to your lips, and seem to swallow its supposed contents, pressing the paper so that it at last becomes quite flat and open, when, of course, the object appears

to have vanished. By this same means any similar article, as a spoon or wineglass, can be juggled away.

AMUSING PARLOUR DIVERSIONS.

Undertake to tell, after something has been written on a piece of paper, what is on it. Take the writing, roll it up, and, after a few passes of the hands, say, "Now drop the paper on the ground in the middle of the room, and, to deprive me of all chance of taking it up, place it under both your feet. I will then proceed to take up any object named, and inform you at once what is on the paper." After a few mysterious movements, to keep the spectators on the alert, you turn to the person standing on the paper, and say, "I engaged to inform you what is on the paper. *You* are on it!" If you can, in taking up the paper, write a capital U on it, you can add, through the laughter, "And, what is more puzzling, though you have stepped off, I see *U* still on it!"

THE ENDLESS TASK.

Taking up a sheet of paper or a splinter of wood, you remark quietly that the strongest man present would be exhausted before he had carried all this wood or paper out of the room. Looks of disbelief will pass around, and your assertion will, no doubt, be challenged. To the person declaring himself able to disprove you, give a small piece of the wood or paper, desiring him to take that outside first; on his return give him another, and so on. By the time he realizes that he will only have to go two or three little millions of times on the journey, he will acknowledge the full proportion of the joke.

THE WONDERFUL HAT.

Lay three lumps of sugar, or any other eatable, on a table, at a little distance apart, and cover each with a hat. Take up the first hat, and, removing the sugar, put it into your mouth, letting the company see that you swallow it; then raise the second hat, and eat the sugar which was under that; then serve the third morsel in the same manner. Now ask the company to choose which hat they would like the three pieces of sugar to be under, and when one hat has been chosen, put it on your head, and ask them if they do not think they are under it.

TO BLOW OFF YOUR HAT.

Let the rim of your hat just catch the edge of the coat collar behind, and then, bending forward, the pressure will cause it to rise off the forehead. The making believe that your breath is causing it to ascend will make considerable astonishment arise.

THE WINE UNDER THE HAT.

Set a glass of wine upon a table, and having covered it with a hat, offer to drink the wine without raising up the hat. Particularly request that no person will touch the hat; then get underneath the table, and commence sucking and smacking your lips as though you were swallowing the wine with considerable gusto. After a minute or two come out, and say to the simplest person, "Now, sir." His credulity will immediately induce him to raise up the hat, in order to ascertain if the wine be really drunk. Upon his doing so, you take up the glass, and, having swallowed its contents, say, "You have lost, sir, for I have drunk the wine without lifting up the hat."

A TOY MICROSCOPE.

With a fine awl, or large needle, bore a hole in a thin plate of lead; into the hole let fall a drop of very clear water to fill up the circle completely; look through the globule of water, and you will see minute objects magnified one hundred and fifty times.

THE CANOPUS TRICK.

An Egyptian priest, who wished to elevate the god of his peculiar creed above those of the Chaldeans, defied them to consume his idol in the fire, into which they commonly cast other images as an ordeal. On the day of solemn trial the flames had hardly blackened the cheeks of the gorgeously painted and gilded figure of Canopus before a loud hissing was heard as of the god in anger, and clouds of white vapour arose to conceal the offended deity. On these fading away the fire was found extinguished, and the god smiling triumphant.

Explanation.—The cunning priest had bored many small holes in the lower part of his clay image, and masked them with wax; the interior (it being hollow) held several gallons of water, which, being set free on the melting of the wax, put out the fire.

TO PRETEND TO PLUNGE THE HAND INTO BOILING WATER.

By having false sides to a kettle set over a flame of spirits of wine, in which "jacket" air is compressed, the letting this condensed air escape little by little into the water which fills the inside of the vessel will impart an appearance of ebullition to the whole fluid. Even

the keenest-eyed may fail to see the difference of this appearance to that of water agitated by heat.

THE RING AND WIRE-LOOP PUZZLE.

Take two pieces of steel or copper wire, each twelve inches long; bend them in the shape below shown, and fasten their ends together. Have also a metal ring an inch in diameter. The puzzle is to put the ring on the double wire, although the loop at the end is about two inches in diameter, without bending the loop out of its shape.



Fig. 39.

To Put the Ring on:—Double the loops thus, and slip the ring over one joint to the middle of the bow.



Fig. 40.

Pull one loop, in your right hand, away from the other in the left, and the ring, moving towards the joints, will be found on the double wires.

To Take off the Ring:—Cross the right hand over the left, each holding one loop, and drop the ring between the two joints; turn the ring once to the right, and once to the left, when it will be on the double bow as at the beginning, and slips off over either joint.

THE SOLDIER A LOBSTER.

By the illustration will be seen how a comical figure for the mantelshelf can be formed of pieces of a lobster's anatomy.



Fig. 41.

The lobster is to be boiled to become the appropriately military scarlet, and all the flesh and decayable matter removed from a big claw, without the upper jaw, which is the body; a big claw, not so long, will be the head, on which paint and gum the hair and moustaches. A cocked hat and feather is glued on top; the

is fastened to the head, and the junction concealed by an orthodox black stock. The four limbs are made of small claws, fixed to the body with wires. An iron pin from the pedestal runs up behind each leg, to which they are bound with red or black silk. A toy gun is fastened to one hand, and glued to the shoulder. The whole is varnished transparently, and is then complete. A crocodile can be imitated by the same materials, as also dragons, griffins, and monstrosities in general.

THE BLOOD-RED WRITING ON THE ARM.

The Pretended Spirit Handwriting.

We owe to "The Genial Showman" the following explanation of this startling deception:—

There being an answer, as a name or date, required to some such question as who fought a certain battle and in what year, you offer to make the letters or figures appear in red upon your naked arm.

Preparation:—Moisten the skin of your forearm with salt water. When asked to discover the mystery, put your left arm under the table, and write with the wrong end of a match, or any pointed stick, on the skin the initials, or the full name, if short, or date wanted. Then show that your arm is unmarked, and instantly double up your fist so as to tighten the skin, and rub the place briskly with your open palm. The letters appear of a red colour at the spot scratched.

MOCK PERPETUAL MOTION.

Choose a room where the temperature is high, from its closeness or the sun beating on its walls, and make a tube communicate with the outer air and run secretly

under a table, up through one of its legs, which is hollow, and end at an orifice, scarcely perceptible, in the table-top. On a frame, two uprights and a cross-bar at top, suspend a pith ball by a silk thread, exactly over the orifice. The current of air penetrating the room will keep it in agitation, without there appearing adequate cause. A current of warm air from an ordinary heating apparatus will produce the same result.

TO SHOOT A GUN OFF AND FIND THE BULLET AT YOUR FEET.

After having put but a few grains of powder in a gun, drop the bullet in, and put in the rest of the charge. The detonation will sound very loud, but the ball will fall a few feet only from the muzzle of the gun. A puppet might thus be called bullet-proof, and be fired at without injury being done it.

TO TRANSPOSE A WINEGLASS INTO SLIPS OF CARD.

This extremely simple trick is merely an optical illusion. Having emptied your wineglass, you make a sudden start as if it slipped, and as if you tried to catch it; but you let it fall on your knees on a napkin or handkerchief, while the same hand is thrown upwards as though to fling the glass at the ceiling, but really to scatter some slips of cards, hidden between the fingers, in the air. This second movement appearing to be to throw up the glass, but the spectator only seeing the bits of card fall, it looks as if the glass had been transformed into paper.

THE BELL TRICK.

You exhibit two bells, such as are put upon horses or sheep, that is, round, and of the size of a lemon. You take one off the table in the right hand, and pretend to pass it into the left, but really retain it in the former. Yet, on shaking the left hand, the ringing of a bell is heard there. Then you take up the one left on the table into the right hand, and close it, there being then the two there. Then, opening the left, you show it is empty. You whistle and beckon into your right hand, which, opening, exposes the two bells together.

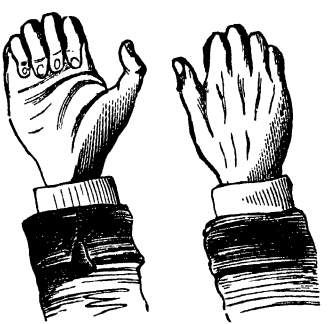


Fig. 42.

Explanation.—The sound of the bell being in the left hand is thus produced:—A third bell is sewn by a thong through its ring close to the sleeve, and hidden in the sleeve, which you roll up, pointedly, to prevent deception!

BOILED CRABS WALKING OUT OF A DISH.

Put two or three live crabs in a deep kettle, so that they will be in the bottom, and sprinkle sal-ammoniac

on their shells. Turn the kettle round, so that they will be well covered, and they will turn red, as if boiled. Place them in a dish, with a cover, and he who lets them out of their prison will be amazed at their walking out at him.

A PICTURE OF A RAVEN CROAKING.

Make a hole in the wall large enough to enclose a frog, and give him plenty of breathing-space. Paste the papering over it, and hang a picture of a raven or a stuffed one before it. On bringing a lighted candle to it the frog will croak, and one would fancy it was the bird's image calling out.

TO DRAW A PICTURE IN FIVE SECONDS.

Take a sheet of blue drawing-paper, and draw a portrait of a friend, or any other picture you please, with red chalk; take a bone point, dog's tooth, or other hard smooth pencil, and go over all the lines, pressing hard. Powder it all with chalk powder matching the tint of the paper, so that the drawing will be invisible. The person having sat to you, you pretend to draw with a red crayon, and in a few seconds give the paper a sharp tap to shake off the loose powder, and display the already completed likeness.

THE JUMPING CAT.

Through the tail of a stuffed animal, as a cat, run a tough, springy length of steel tape. Stick some wax on the end, and bring it round to one side, where you press it so that it will hold. Lay the cat on that side, stroking it, and saying, "Poor pussy, go to sleep!" and turn

away. Presently the steel will work off from the wax, and make the body spring up and roll about comically. Twisted catgut in the tail will bring about the same result.

TO BREAK A BOTTLE FILLED WITH WATER AND NOT SPILL A DROP.

In the mouth of a bladder or an india-rubber bag of the capacity of a bottle, fit a short tube, just the size of the bottle-neck inside, where it fits, prevented from slipping in by a little edge. Push the bag into the bottle, which should be of dark or opaque glass, and fill it with water, as if merely pouring into the bottle, before the eyes of lookers-on. Hang the bottle by a cord to a nail in the ceiling, and secretly, at the same time, slip a ring at the end of a wire attached to the mouthpiece of the bladder on the same nail. Then engage that though a blow with a stone or stick, or a pistol-shot, shall shatter the bottle, not a drop of the water will fall on the floor. Indeed, the glass enclosure may be shivered without injury to the bladder, and, of course, without its losing any of its contents.

TO HOLD UP A PAIL OF WATER ON TWO KNIVES THRUST INTO A MELON.

Taking up a citron, melon, peeled turnip, or other substance of a yielding nature, you thrust two knives through it horizontally, at right angles to a straight line through its length, and boldly maintain that a pail of water could hang from the lower knife, while the upper one is fastened to a table or the ceiling, without a down-

fail. On being challenged to perform such a contradiction to natural laws, you fulfil all you promised.

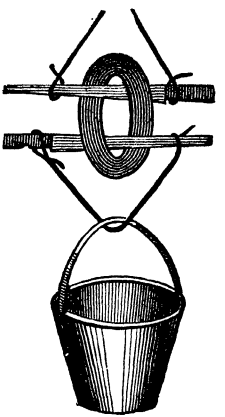


Fig. 43.

Explanation.—You must prepare the melon by sinking in it an iron ring, over which the rind will close of itself after a few minutes. If the two knives are thrust through this, it follows that it is really the ring which has to sustain the weight, which it may do without difficulty.

AN UNBREAKABLE SEAL.

In "The Secret Out" we revealed the process of opening a letter in spite of its seal, reading it, and replacing the seal without trace of such tampering. As an *amende*, we now give the means of sealing a letter which no one can open without betraying the trickery. We will suppose your seal has four colours, one to each part, as the crest or crown in *or*, or gold; the shield in *gules*, or red; the supporters or surroundings, if any, in *sable*, or black;

and the field or ground in purple or green. On wax of each colour stamp your seal, on very thin paper; cut out of each colour that part which is above directed to be of that colour. Into the hollow of the seal put each part, by wetting the face slightly to make it adhere. Melt a little green wax on the letter when closed, and while hot bear the die upon it; the heat will fuse them all together, so that the colours will be seen appropriately on the green ground. No one can melt the seal now without the parts running together and betraying all by their intermixture.

THE RESTLESS LOAF.

Fill a nutshell with *sulphur vivum*, saltpetre, and quicksilver, and put it in a loaf of bread in the oven. The heat will make it dance to the door and knock to be let out. Or the same in a hot breakfast-roll will cause laughter.

TO TELL COLOURS IN THE DARK.

Take some human hair, and dip one end in a dye, say blue, and the other in yellow. Now undertake to tell, even with your eyes blinded, or in the dark, which colour is presented to you, by the touch alone. You can do so by running the hair between your finger and thumb along its length, since it will offer resistance if drawn from the end to the root, by reason of its bristling with minute teeth pointing all one way.

THE BANDILOR.

Fasten two discs of pasteboard or wood at the ends of a short axle. Bore a hole through the centre of the

latter, through which run a cord. Tie a knot on one end of the cord, to prevent it coming through; draw it up to the hole, and wind it around the axle; hold the free end between finger and thumb, and let the toy fall. It will not only unwind itself, but the revolution will make it wind the cord round it again in the reverse way, if you give it loose cord enough at the right moment. Thus, a species of perpetual motion is obtained. If the discs are hollow, and a hole is bored in the edge, they will emit musical sounds in their motion.

TO SEND NUTS INTO THE EAR.

Show three nuts, thimbles, rings, or "such small deer," in your left hand. Take one between your right finger and thumb openly, and a second between the fore and third finger unperceived. Carry your hand to your mouth, and really put one nut into it, but, making a pass with the hand, sneeze, and show the other, as if it were that put in the mouth. Now pretend to throw it into the ear, but really catch it in your left hand, which, opening, discovers two nuts indeed, as if the third had gone into the ear. Complain of the earache in pantomime, pull out your handkerchief, shake it, to prove it is empty, and, in carrying it to your ear, take the nut out of your mouth.

TO CHANGE THE PLACE OF AN OBJECT WITHOUT TOUCHING IT.

Three coins being placed in a line, you can change the place of the middle one without touching it; for, by putting one of the outer pieces beside the other, the centre one becomes the first or third.

TO MAKE A SEAT OF THREE CANES.

Set one end of each of three canes as follows, and a seat will be made capable of upholding a good weight.

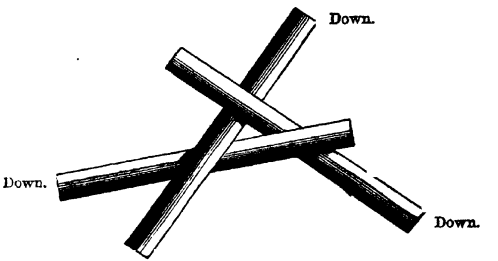


Fig. 44.

Three tableknives, with their handles on the top of three inverted wineglasses, penholders, &c., will serve as an indoor illustration; the bats used in "rounders" for out-door ones.

The Toper's Tripod is the same figure made with long pipes, so that a quart pot can be set in the middle of the stems where they meet, and be held up.

THE PUZZLE BRIDGE.

There is a stream fifteen or sixteen feet wide, over which is to be thrown a bridge, but none of the planks attainable are more than six feet long, and there are no means of lengthening them by joining.

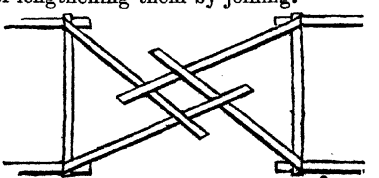


Fig. 45.

By the above arrangement the crossing is secured.

TO CRACK NUTS IN THE BEND OF THE ARM.

Having a hard-shell walnut in the right hand, openly take two more; one of these is openly set in the bend of the left arm, where you engage to break it by the muscular contraction. Close your left arm, and strike it with the right fist, in doubling up which you break one of the walnuts there, the crash appearing to come from the one you promised to break. Open the arm gently, for fear of strewing the carpet with the shells, and, juggling away the extra nut, show the fragments in your right hand.

TO CUT A CARD FOR ONE TO JUMP THROUGH.

The whole idea lies in the making as long a cord as possible of the card, to which end it is cut as follows:—

Fig. 46.

It will be seen at a glance what the result will be. The adventurer of old, who, inducing the aborigines to give him as much land as a bull's hide would cover, and made it into one strip by which acres were enclosed, had probably played at this game in his youth.

THE INEXHAUSTIBLE HAT.

The trick of producing a quantity of toys, knicknacks, and confectionery from a borrowed hat is performed by your slipping into the hat a bag with a spring around

its mouth, which keeps in the contents. The spring opens at your touch, and you pull out the articles. The bag, when empty, takes up little space, and even while you juggle it away you replace it with a similar bag full of new surprises.

THE JAPANESE BUTTERFLY TRICK.

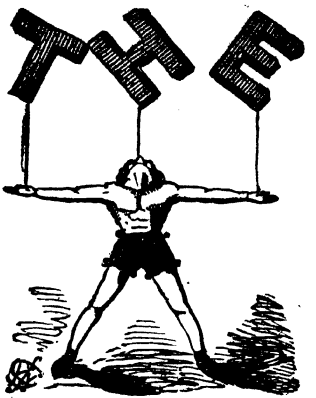
We regret that we know of no royal road to success in this entertainment. It is purely a question of handling a fan so as to direct the currents of air its motion generates upon imitation butterflies. The latter are made of very thin tissue paper, in the shape of Maltese crosses; to keep a pair together, a fine hair or a couple of feet of thin raw silk unites them. You can become skilful in about three weeks, but for a public performance treble that time is requisite.

THE MAGIC IMPRISONMENT.

Undertake, by the simple clasping of a person's fingers, to retain him in the room without any other bar whatever. This is done by letting his arms surround a pillar, the leg of a table screwed down, or some other immovable, before his fingers are joined.

In the middle ages captives were often handcuffed, or rather rope-bound, at the wrists around trees, to save the trouble of binding them hand and foot.





MAGIC OF EQUIPOISE.

A STICK BALANCED ON A WINEGLASS EDGE.

On each side of a ruler or other stick, ten to fourteen inches long, stick the point of an open penknife, of equal weight, parallel, about three inches from one end. If the handles are curved, let the curve be towards the stick.

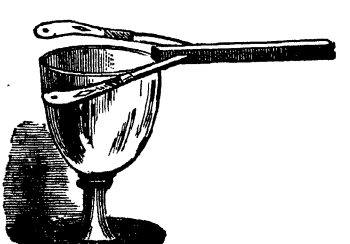


Fig. 47.

Whether the glass is empty or full, the stick will continue extended.

PEGASUS IN FLIGHT.

Take a toy horse, with its centre of gravity about the middle of its body. Affix fancy wings behind each shoulder, to give a resemblance to the charger of Poetry, and fasten a wire to the belly, bent in a curve, and loaded at the other end with a leaden ball.



Fig. 48.

If you set his hinder heels on the table near its edge, so that the ball will have full play under it, the animal can be made to rock up and down without danger of falling either to one side or forward.

THE STEADY POLICEMAN.

Stick a needle in the cork in a bottle or decanter; shape out of pith or cork a figure representing a life-

guardsman, a policeman with his truncheon, a janissary with his scimetar, or what you will. Mount him on a hard wooden ball; through the ball run a wire, and bend it into half a circle; to each end fasten a leaden, iron, or *lignum vitæ* ball.

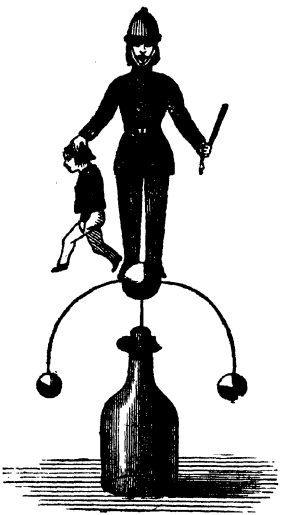


Fig. 49.

If properly made, the figure may be spun round or tipped over in any direction, and yet it will regain its uprightness.

THE SPINNING CORK.

Variation.

Drive a needle, eye down, into a cork; stick an iron fork into opposite sides of the cork; turn a tumbler up-

side down, and put the cork on it on the point of the needle, like a top. This will spin for upwards of half an hour.

THE QUINTAIN.

Carve out the bust of a man with a ferocious face, on which you will gum a Turkish beard and moustaches; let one arm be extended, half bent, holding a wooden scimetar, and the other bear a shield, adorned with an opening, crescent-shape, in which hangs a little bell. Load the base with lead, and poise it on a pin, on which it shall so freely revolve as to move at the touch of a feather. Now, whoever, trying to make the bell ring with his finger, does not thrust at it very quickly, the figure, turning, will deal him a smart blow on the fore-finger knuckle with his sabre.

TO SPIN A SHILLING ON ITS EDGE ON A NEEDLE-POINT.

After having found by practice that you can balance a plate on a pin-point, which is undeniable, offer to spin a coin by its edge on a needle. Cork a bottle, and run a needle into it, eye down; cut a groove in a second cork which will hold a shilling tight, and flank the cork by two iron forks, as in the Spinning Cork trick. Set the coin by its edge on the needle, and spin till weary of it.

THE PUZZLED LAMPLIGHTER.

Take a piece of wood in the shape of a bottle, on which a person is to sit with the neck outwards. He being seated, you set one end of a cane on the floor, and

the other against his waistband; he is to cross one leg on the bottle; by this means he is in perfect equilibrium. Let him have a candle in each hand, one lighted, with which he is to light the other one; but as he is balanced evenly, the least movement upsets him, and prevents his success, at least, in a dozen trials.

Variation.—Instead of two forks balancing a cork, take a pin of wood, two or three inches long, one end tapering to a point, the other forming a man's head; paint the face and body, or make a mermaid of the shape. This is the substitute of the cork. For those of the forks, cut a piece of wood six inches long by a quarter inch wide, in half; bring one end to a point, and stick the points in the figure's shoulders, the sides to be parallel with the line of the horizon. Poising this figure by the point on the tip of your finger, it will not only stand erect, but keep upright while whirled around.

PIPE BALANCING.

A feat, nearly two hundred years old, is thus accomplished. Though it is difficult to keep one tobacco-pipe in equilibrium by its stem or bowl, the apparent increase of the difficulty will lessen it. Hold a pipe bowl downwards; cap its stem with the bowl of a second pipe; on this bowl, where there is left a little knob as an ornament, set the stem of a third pipe, in the bowl of which is the stem of a fourth, and, lastly, in its bowl the stem of a fifth. Place the lowest pipe by the bowl on your chin, with the head thrown back, and, after some attempts, you will succeed in preserving them all in balance.

SWORD BALANCING.

To balance a sword, let the hilt, and not the point, be upwards. A rapier with a bowl hilt is easily kept erect.

TO BALANCE A PAIL OF WATER ON A STICK BUT HALF RESTING ON A TABLE.

This incredible feat is very easily made clear, particularly when a diagram accompanies the explanation.

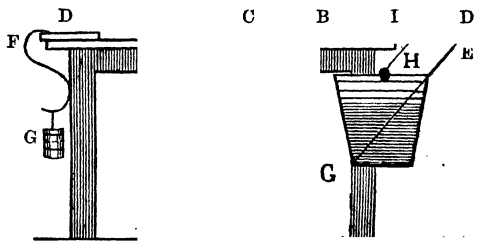


Fig. 50.

Let C D be a stick on the top of a table. Run the handle of the pail or bucket over the stick, so that it may rest upon it from I in an inclined position, and let the middle of the pail be within the edge of the table. To keep it so, let one end of the stick G E rest against the corner G of the pail, its middle against the edge of the bucket, and its other end against the first stick C D at E, where there is a notch to prevent it slipping. If not full, fill it with water without fear, for its centre of gravity being in the vertical line passing through the point H, which itself meets with the table, the case is the same as if the pail were hung from the point of the table where it is met with the vertical. The stick cannot slide or move on its edge without raising the centre of gravity of the pail and its contents. The heavier, therefore, they are, the greater the stability.

Variation.—How to prevent a body, about to fall by its own weight, from falling, by adding to it a weight on the inclined side. Bend a stout wire, as the hook D G F (fig. 50), and put the upper end in the pipe of a

key at D, on the edge of a table; at the lower end of the hook hang a weight G, all so fixed that the vertical line G D may be a little within the edge of the table. The key might otherwise have fallen, but cannot do so now. In reality, the weight was added to the opposite side, but it does not seem to act as a counterbalance.

DECEPTIVE BALANCING.

Mr. Goody, a friend, who Boswellizes me to an annoying extent in order to penetrate the mystery of my performance (when he had much more profitably purchased my books of revelations), had no sooner heard my explanation of the last act than he began a series of exhibitions at houses where he visited, to the deluging of I know not how many carpets. He was lamenting this misfortune, which I can only attribute to his native luck to blunder, when I thought to astonish him still more. Taking a ruler, I laid one end on the mantelpiece, and, holding the other in my hand, said, "Will you credit the fact that this stick would remain in this position, though I remove my hand?" "Certainly not," cried Mr. Goody; "it will fall." "Then you will not believe that it will hold itself better by being weighted at the other end by—by—let me say this chair, for instance." And I tied the two ends of my handkerchief to a chair, and passed the loop on the ruler. Mr. Goody opened his eyes at this paradox, but I soon proved that he had not reached the uppermost heights of amazement, by showing him

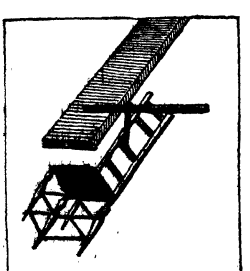


Fig. 51

another experiment of the same nature, but more complicated.

I took up a heavy four-branch gaselier, which I explained was to be put up in the room, to account for its presence; in the middle of the top ornament, a globe, was a hole, through which the end of the ruler being passed, it remained suspended in the air. Mr. Goody tried in turn, but he never succeeded, for one branch alone could be set under the support, and the weight of the other three forced the ruler to topple over off the shelf. Nevertheless, in a couple of minutes I said, "Mr. Goody, now try, for I will empower the candelabra to obey you." And this time the lustre did hang on the ruler without a fall.

Explanation.—First, the chair, as arranged, balances itself on the principle of the pail and cane. Secondly, the gaselier required jugglery to come to its aid.

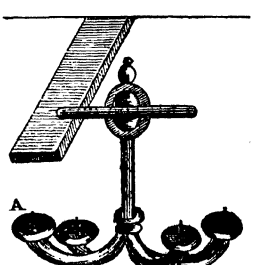


Fig. 52.

When the gaselier is given to strangers, its arms are equal in weight, and any one of them must, therefore, be overpowered by the triple force of the others in union. When you yourself perform, you secretly slip into the cup of branch A a ball of lead, which increases the weight beyond that of the others united, when the

ruler must remain horizontal. When you wish to make another fail or succeed, without touching it, you must have a supplementary contrivance. The gaselier must be made as in this diagram.

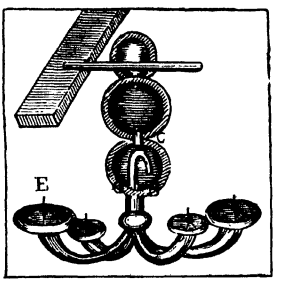


Fig. 53.

While the experiment is in progress, a certain quantity of quicksilver, filling the ball A, runs into B during three or four minutes. As soon as it fills the latter to the height C, the syphon D draws it all off, so that it runs in an instant to fill the cup E, where it acts precisely the part of the ball of lead in the former case. Thus, success is assured, though the feat could not take place three or four minutes before; and when it does occur three minutes afterwards, every one imagines that your success depends on your will, and not on hidden works.

TO MAKE SCREENS WHICH WILL RISE ERECT OF THEMSELVES AFTER BEING PRESSED DOWN.

Just as a false keel of lead attached to the bottom of a toy boat will cause it to right itself in the water, so may a screen be made to act similarly by having it of very light material, with a heavy bar along the bottom of its frame as a counterweight.

THE MAGIC BOUQUET,

Taken from a Borrowed Hat, and yet Three Times the Size of that Hat, and Fading or Blooming at Command.

The stalks of the flowers of this bouquet are made hollow, of hard paper, rolled up, or tin. Pierce them with several holes, around which mould wax to resemble the cups of flowers and their stems. Over the wax put loosely some goldbeater's skin or gummed silk, painted of the colour of the flowers to be represented, and so caught up at the lower edges as to assume the desired shapes when there is air within. This being done, the envelopes can be pressed and pinched till they take up little or no room, and the bouquet will enter a hat. In the barrel or handle of the nosegay must be a container of compressed air, which air, on being set free by pressure of a spring, rises into the stalks of the flowers, and puffs out the envelopes into their proper shapes. To make them wither, a piston which draws the air back down again into the barrel is alone required. This is beautifully effective, and is the ladies' favourite.

TO MAKE A LUCKY NINEPIN BALL.

Bore a hole in a common ball, not quite to the centre, fill it with lead, and let in a plug of wood to hide the joining. On rolling such a ball, it will turn from the straightforward course, unless by chance or skill you have made the lead turn so as to be either exactly at top or bottom whilst rolling.

A CYLINDER ASCENDING AN INCLINED PLANE.

At one point of a cylinder, as a tin canister, on the inside, solder a leaden rod from end to end; or, if it is a

solid wooden block, bore a hole at the edge, and run lead into it. This prepared cylinder can support itself on an inclined plane if the angle of the latter with the horizon is not too wide. If it is turned in a certain direction, it will, moreover, move up the incline, carried by the weight.

On this same principle a clock has been made to tell time though it was rolling down an incline, for which it required twelve hours, at the expiration of which the road it ran on had to be reversed for it to repeat the performance.

A DOUBLE CONE ASCENDING A SLOPE BY ITS OWN WEIGHT.

Take two cones of wood—of oak, for instance—and join them at their bases.

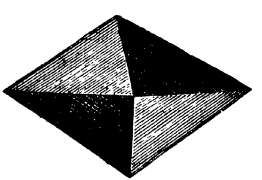


Fig. 54.

Then make a supporter of wooden slats, in the shape of a letter T. At each end of the cross bar D place a

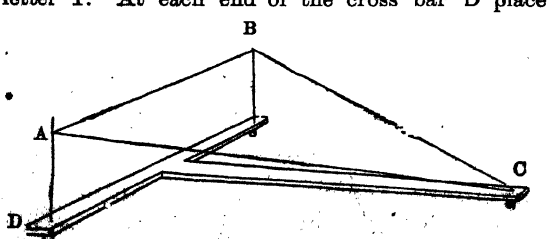


Fig. 55.

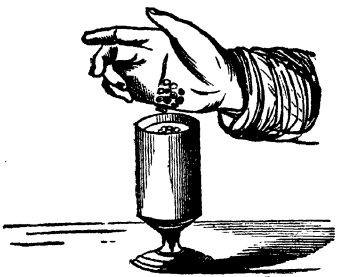
pin, A and B, from which shall run a strong wire to the pin at the end of the bar C. The summit, C, must be below the horizontal line; the two arms equally inclined to the horizon; the line A B equal to the distance between the tips of the double cone, and the height, A D, a little less than the radius of the base.

This done, on placing the cone between the wires at the base, it will roll up to the top.

UNCONSUMING FLAMES.

You may seem to destroy an article, as a bank-note, a letter, or a handkerchief, by pouring on it spirits, good brandy, &c., which will burn more in the air than on the things saturated with it, and which has an inflammable residue so water-like as to put the fire out. A handkerchief, well soaked in white of egg and alum, is also incombustible.





TRICKS WITH APPARATUS, BUT WITHOUT CONFEDERATES.

1,001 GOBLETS FOUND IN A HAT.

(*Frikell's own Trick.*)

Preparation.—Let about five-and-twenty tin cups be be made (as in the illustration), fitting neatly into

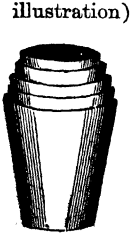


Fig. 56.

one another, the smallest into the next larger, and so on, the diameter increasing successively only by the

thickness of the metal employed. This collection of many cups, all in one, can be placed on the conjuror's table in open view, if so made as not to lead any one to suspect that the outer one contains several.

Performance.—This agglomeration of goblets is covered with the hat, when you are laying the latter down as if carelessly. When you please, you pretend to hunt for the goblet among the objects about you, and, on discovering it under the hat, you appear wonderstruck. You make as if to take up the cups, and do so at the same time as you lift the hat, crown upwards. By having your little finger under all the cups, held mouth upwards, you prevent any falling out. You take the inner one out and place it on the table, and are about to put aside the hat, held in your left hand, when you are surprised to see another cup in the hat. You take it out and put it down near the first, and again are amazed that the hat is still occupied. Then you quickly extract the cups one at a time, piling them up on the table in a symmetrical heap, as a pyramid, for instance; one or two you can let fall to roll among the audience, the curious pickers-up of which will be much edified by studying their simple material and unromantic shape.

THE BEWITCHED DICTIONARY.

Take up a large dictionary, and, turning the pages over carelessly, suddenly stop among the C's, for instance, saying, "How well this is illustrated; c-a-n-a-r-y —canary!" and a canary flies out of the book. Turn forward and stop among the L's for a lark, among the O's for an owl, and so on. Then give the book to be examined, whilst you catch the birds so miraculously produced. Yet nothing is more simple. Behind the

table, and at the end near which you stand, is a shelf on which are the birds arranged in alphabetical order. In moving the book and your hands to and fro, you cover one hand with the open book to get the bird up to its level. On spelling the words, it is easy to open your hand and let the prisoner take to flight.

THE MAGIC UMBRELLA-CASE.

Let a cylindrical case be made of the same width from end to end. The inside is to be divided in halves by a diagonal partition, in such a way that either end has an opening into which an umbrella or parasol can be thrust, as in the diagram.

Fig. 57.

Display the parasol, shut it up, and put it into the case. Offer to transform it into dolls, toys, perfume-crackers, or any other such articles. In going to your table, you have only to let the case fall, as if by accident, when, in taking it up, you can do so by that end to which the ferule of the parasol points, and which is, really, the mouth of the compartment where the toys are packed.

Wave your wand, invoke your magical powers, and astonish your audience by pulling out and tossing among them the trifles into which the disappeared parasol seems to have been recast.

TO RESTORE A RIBBON CUT INTO TWENTY PIECES.

A coloured ribbon is shown to the audience, together with a metal case, of brass or pewter, commonly called a "sovereign-box." The latter can be examined, to prevent the slightest uncertainty existing about its solidity.

Retaking the ribbon, you snip it into many pieces, and put them all into the box, saying, "The ladies may rely on it that no one would in his senses destroy so beautiful a ribbon, if he did not have the power of restoring it to its original condition." Immediately some one is requested to hold the box, so that there can be no suggestion of a substitution; yet, all this to the contrary, the ribbon is found entire when the box is opened. The box is again examined, but it has no place of concealment for the cut pieces, or to produce the entire ribbon.

Explanation.—On the shreds being closed up in the box, it is taken, laid on the table a second, and then held in the right hand.



Fig. 58.

But a second box, similar, and containing a ribbon exactly like the other before it was cut, is held between the thumb and the base of the ring finger, unseen,

because the palm of the performer's hand is away from the bystanders.

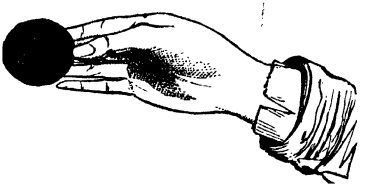


Fig. 59.

This being arranged, some one is asked to hold the box, and, in describing a semi circle with the hand, as if to present the box ceremoniously, it is let fall into your other hand, upon your knees, or behind your table, as the case may be, and the second one, being pushed forward to the tips of the fingers, is accepted for the first.

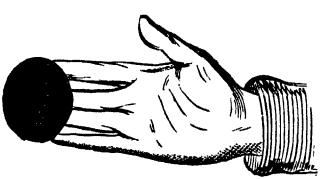


Fig. 60.

This deception succeeds all the better from no one guessing that the substitution was made at that point, whereas one is apt to believe that the secret lies in the formation of the perfectly innocent box.

A SIMPLER BOX FOR THE SAME, WITH COIN.

Take a common box, about an inch deep, round, and of the diameter of the coin to be played with. Line it

with dark paper, and paste on one side of the coin some of the same paper. Previously to your performance, let a similar coin be concealed where you can remember it, and, on borrowing a third coin of the sort, drop your prepared one plainly into the box, papered side up. Put the lid on, and shake the box up and down, when the sound will prove the coin's presence. Now shake it from left to right, when the coin, fitting the interior, will not move, and, consequently, make no sound. Boldly remove the lid, and show that the box is empty, as the coin seems now to be the bottom. The hidden coin can be discovered, or the one you borrowed can be juggled out of a bystander's ear, pocket, or hat, at pleasure.

ANOTHER BOX FOR DISAPPEARANCES.

A box is upon your table, into which you plainly place little articles of the nature of sweetmeats, toys, cakes, &c. One of the party is asked to lock the box, and you tap it and the table with your wand, to prove there is no trap or hole. Leaning over the box, so as to mask it considerably, tilt it over on one side, when, on opening the lid, the contents are gone.

Explanation.—The box, which is square, has no bottom, or, rather, a side swinging on a hinge seems to be the bottom of it. It has a lid with a lock, and a spring catch, and no other mechanism.

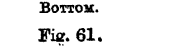


Fig. 61. Fig. 62.

A, the box without the bottom. B, the hinge, corresponding with D, the site of the hinge-pin in C, an

angle piece exactly fitting one side and the bottom of the box. The spring catch prevents it falling outwards except when its movement is wanted. When you turn the box upon its side, after letting the catch go, the bottom remains on the table's surface line, and the side becomes the bottom, and, of course, shuts off all view of what is really only on the other side of the flap. When the box is set up again, the pieces resume their former places. With a box of a suitable size, a man or other large object could be conjured away out of sight quite as effectually.

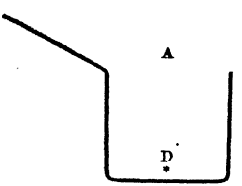


Fig. 63.

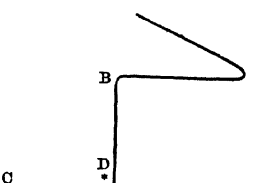


Fig. 64.

A, the box, with object, D, to disappear. B, the same on one side, the false bottom concealing the object.

THE PEPPER-BOX TRICK.

Procure an ordinary tin pepper-box of the elegant shape here shown, which is not unlike the pillar posts, and let a tin tube be soldered to the bottom, which is removed, so that it will play inside it like a telescope's slides. Cut a slit at the bottom on one side of this tube, so that a coin will enter it. Make the lid double, enclosing a metal counter, which will move with a sound when the top is shaken. Borrow a shilling, which is to be marked, take off the lid, and let some one put in the

coin; it instantly drops to the bottom, and by the slit falls out into your hand holding the box. In fastening the lid, push up the inner tube, and rattle the counter. Pretend to drop the coin through its prison into a hat or on a plate. Then rattle the counter, previous to picking up the marked coin from the floor, or in a corner, or under Master Bobby's collar, &c.

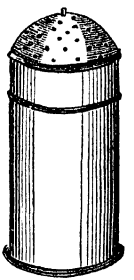


Fig. 65.

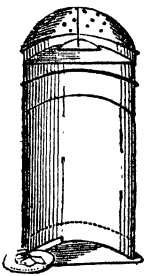


Fig. 66.

THE BELL AND BIRD TRICK.

To transform Canary Seed, under a Bell, into a Live Bird.

Preparation.—Let a tin bell be made, eight inches high, and five inches wide at the mouth. Of the same metal

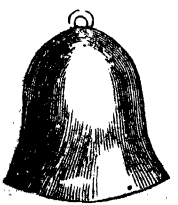


Fig. 67.

Fig. 68.



Fig. 69.

have a cup made five inches deep, which will go into the bell; have an edge to it, as represented in fig. 69. A second cup or box, which will go into the first one, will be but an inch deep, with an edge a little broader than the other one, as shown in fig. 68. In addition, have a bag, large enough to hold a handful of bird-seed and a bird, such as a pigeon, and all your preparations are complete.

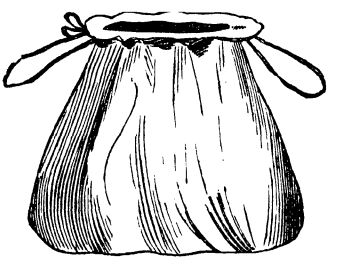


Fig. 70.

Performance.—Let your bell be circulated amongst the audience for scrutiny, to persuade all that there is nothing suspicious hidden in it, and let the bag of seed be examined, that no one can imagine a bird was contained in it. You have already put the bird in the box (fig. 69), and covered it by the other (fig. 68). The two boxes seem but one, and you put them into the bag of seed, saying it is to fill it. But the seed only goes into the upper cup. You set the whole on the table, asking a lady to take a pinch of the seed in her hand, to utterly remove doubts. The double box being on the table, cover it with your bell, which you press down firmly; if the sizes of your boxes were properly adjusted, the smaller one will be of the inside diameter of the bell, and so be pinched by it, and will come up with it when you uncover the second box (fig. 69), and the bird will

be free to leap out, as here depicted, to the general surprise.

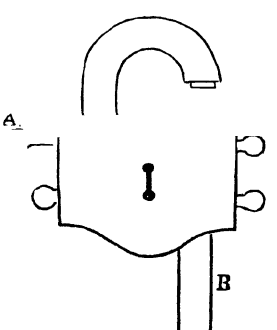


Fig. 71.

Note.—A few small holes made in the box (fig. 69) will give the bird air.

THE MAGIC PADLOCK.

A padlock is represented in the following figure, which can be attached to a person's lip with all appearance of piercing the skin, and which cannot be removed without the magician's help.



OPEN.

Fig. 72.

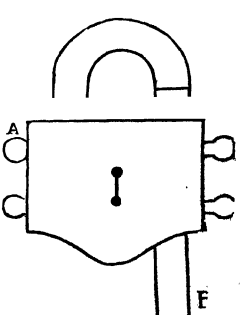


Fig. 73.

Fig. 72 shows the padlock open, in other words, with the button A pulled out, and the bolt B let down.

Fig. 73 is the same padlock closed as it is shown to the audience, who cannot undo it, if ignorant of the secret. A is the movable button pushed in, and B the movable bolt run up, so as to unite with the elbow part of the principal stem.

To open the lock, you need only pull out the button A at the same time that the bolt B is let down. To fasten it, let go the button A and the bolt B, which shut of themselves.

By this instrument a door with a hasp and staple can be fastened so that, while against all others it is secure, you can open it in five seconds.

It can also be used as follows. Call to you some youth who has been particularly boisterous during the entertainment, and ask him several questions, to which his native impudence will probably cause him to give bouncing answers. Upon that, say sternly, "You're a very good boy, but have the fault of too long a tongue,"—and clap the padlock to his upper lip quickly, though, of course, not roughly, and say, "Now, my friend, speechify if you can."

But there is little fear of the victim abusing your permission, in his bewilderment at the experiment. There will be sufficient spring in the apparatus to prevent him or outsiders releasing him, when you will come to his aid and liberate him with a mere touch.

THE KEY AND THE RINGS.

To Take Rings off a Key.

A key is shown, on the shank of which are three rings, much too small to be forced over the wards or

the handle: the puzzle is to take off the rings, and again, when they are free, to put them on.

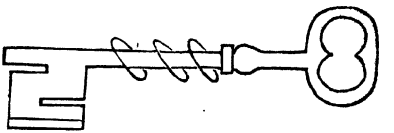


Fig. 74.

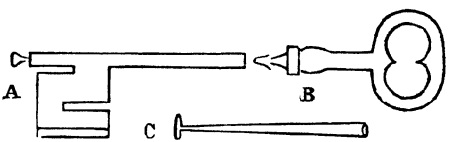


Fig. 75.

Fig. 74 shows the key encircled by the rings as it is presented to the audience.

Fig. 75 shows the same key in two parts, which are held firmly together by a catch at the end of B, which enters into the end of A, the spring of which is forced by the insertion of the little pin C. It will thus be seen how very easily the rings can be taken off and put on the key.

In presenting this puzzle to the audience, you tell the following story:—

"In the dark days when all men of superior learning were compelled to enter the Church, or run the risk of the sorcerer's fate, a wise man was encaged in the dungeons of Toulouse, which he found too tight for him, by the way. To add mockery to his pains, two or three rings of his leg-irons were welded around the stem of a key which opened his dungeon door, and his jailors daily jeered him, saying that he had only to charm the key off the rings to set himself free. In time he puzzled himself out of the bondage, so that

one day they who had had such rare sport with him, found he had made himself scarce. Now, how was it possible for him to extricate the key from the rings, or as in this case in your hands, the rings from the key?"

Upon the impossibility of this solution being owned, you take the key, hold it behind you (or ask for your hands to be covered with a hat or a handkerchief), and separate the key so as to get off the rings, when you restore the key to its former condition. The tool to force the spring is so small as to be easily concealed, and as practice will enable you to perform the trick with one hand in time, the mystery will remain impenetrable.

THE BARREL OF REGULUS.

To Enclose Coins in a Cask and defy their being taken out.

The little barrel here depicted is made on the principle that no force that can be reasonably applied will drive in one head of it; but that same head, on being pressed *from within*, will readily drop out.

Fig. 76.

Having shut up inside the barrel a coin, a lady's ring, a marble, or other small article, the barrel is presented to the audience, with the assurance

that not one amongst them will be able to extract the prisoner.

While they try, you can relate the story of Regulus, the Roman general, rolled down a hill in a cask lined with spikes, and regret that he did not know the secret of leaving a cask as freely as Diogenes his tub.

On all attempts proving fruitless, you pull out the tap, insert a strong iron wire by the hole, and push the head A, which will fall into your hands.

You will naturally take good heed that no one sees how you get at the contents of this magic cask.

Boxes can be made on this same plan, of any shape fancy may suggest.

THE SUGAR-PLUM VASE.

To Change White Beans into Swan-shot.

On account of this vase and its cover having both false bottoms, it holds very little. Each of these false bottoms is opened by pressure on a spring above and beneath.

Preparation.—In the cover is placed some black beans, or swan-shot, or similar small globes, and in the vase itself white beans.

Performance.—Whilst chatting about paradoxes, and the difficulty of proving that black is white, you show the white beans, apparently quite filling the vase. You put the lid on, and at the same time make the white beans fall into the bottom out of sight. But, suddenly feigning that you forgot to let a few of the beans be handled by the audience, to convince all that there is no deception, you open the vase. But, as pressing the spring in the cover has made the shot or black beans

drop down into the vase, you affect to be as much astounded as your audience really are.

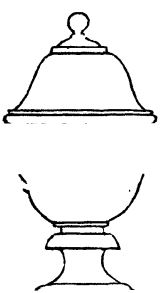


Fig. 77.

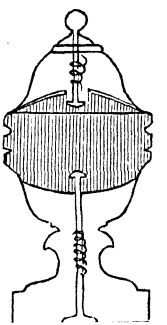


Fig. 78.

THE BEWITCHED BILLIARD BALLS.

To send a Ball from one Box into another Box.

Preparation.—Let two boxes or urns be made, exactly alike, with a cover to each, deep enough to hold a billiard-ball. In one of the urns is shown the ball, and the other urn is exhibited quite empty. The ball being in the cover of the apparently empty urn, it is shut up roughly enough to make it drop down into the cup which it fits, and you say, as you cover the other urn in which the duplicate ball is seen, "This ball must fly into that other urn without my handling either of them." In putting the cover on, you give a slight shake, which makes the ball leap up into the lid, and so its removal reveals the empty urn; but the other urn now being uncovered, you can easily display its ball dropped down at the first into the body of the urn. This can be repeated as often as seems desirable.

THE TWIN VANISHING BOXES.

Two boxes are required, precisely alike as far as outward appearance is concerned, but one having a false bottom in the cover of it.



Fig. 79.

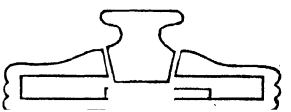


Fig. 80.

In this secret place is put a coin or medal, which can be heard to rattle when the knob is let up, but which is held firmly when the knob is pressed, the sound of the coin shaking making it be believed that the box contains money, though it is actually empty. The other box only resembles this in shape, having no secret receptacle, and can be handed round among the audience. This latter we will call the plain box, and the other the false one.

Performance.—Only one box is to be shown at a time, although both are to be in your hands, and hence practice is required to make you skilful in the operation. Borrowing a marked shilling, florin, or crown, according to the size of the coin contained in the false box, you place it in the plain box. You exchange the latter for the false box, with care to rattle the shilling, by loosening the knob; then pressing it down, you beg a lady to wrap the box up in an end of a scarf, or handkerchief, and hold it tightly. This done, you order the coin to vanish from the wrapped-up box, which is uncovered, and found, with surprise, to be empty. Taking this box, you exchange it for the other, which really contains the coin, and in which it is found, to the double amazement.

THE BELL AND BEANS TRICK.

Preparation.—Have a bell made, as shown in fig. 81, where there is a cavity in the top to hold half a pint of beans, peas, or shot. The handle is kept up by a spiral spring, but when you press it down, it opens the mouth of the cavity, and lets out its contents.

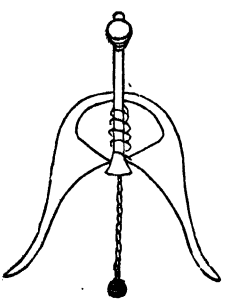


Fig. 81.

Performance.—Having put into a half-pint measure a shilling or other coin, heap it full of beans, and say, "My agricultural friend, Benjamin Bumpkin, came to Covent Garden last week, and, hearing of the celebrated forty-feet-an-hour climbing bean, went into the shop to buy some. He rang the bell—(you ring the bell)—and had the measure full of beans poured out to him." You empty the measure into the bell, retaining the coin by your thumb. Pour back again, and say, "But Mr. Bumpkin haggled about the price until the man became bumptious, and took back his beans—(pour into the bell, and press the handle, so as to fill the secret place)—and refused to return the money. My friend went out for a policeman, and returned. The shop was closed, but he rang the bell furiously.—(Ring the bell, hold it mouth down, when it seems to be empty.)—He forced his entrance and shook the seedsman by the collar, to obtain his money—(drop the coin)—and the benevolent Bumpkin had to depart without the beans.—(Cover the measure with the bell, and press the handle, to let the beans run down into it).—Yet he ought to have

persevered, for here (show the measure) are the beans ready for him."

THE ENCHANTED FIGURE CASE.

To tell the Number formed by Three Figures in a Box without seeing in what order they were arranged.

A box is given to one of the company, which contains three blocks, on which are the figures 2, 3, and 4. He is asked to place them in any order he pleases in the box, which he is to return to you locked by himself, without letting you know what sum the three numbers compose.

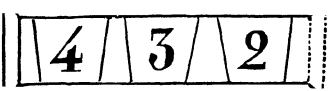


Fig. 82.

Fig. 83.

This box has a flexible bottom, as of that felt-lined india-rubber cloth used for covering pianos, through which, while you seem but to be holding the box in your left hand by the right-hand opening, you can easily feel the order of the blocks; that of No. 2 being narrow at the base, that of No. 3 equally thick throughout, and that of No. 4 narrow at the top. A very little practice will teach the knowledge of these blocks by the touch. The trick must be performed rapidly. By similar means a box can be constructed to hold seven

or twelve blocks, differing enough to betray their identity by the feeling, the first to tell which day of the week, and the other which month of the year is chosen by the audience.

TO MAKE A PICTURE WHICH CHANGES ITS ASPECT FROM THREE POINTS OF VIEW.

Make a box without a cover, say ten inches wide by six high, and one inch deep. Groove the top and the bottom, on the inside, with straight lines, one inch apart, into which can be inserted slips of cardboard, thin wood, or metal, an inch wide, and so long as to fit an end in the top and bottom grooves diametrically opposed to each other, perpendicularly. Take a picture a little less than ten inches wide and six high, and cut it perpendicularly into inch strips, pasting the first one of them on the left hand against the back of the box, on the left in the space between that side and the first groove; the next slip in the next space, until all are placed. Take a second picture, ten inches wide and six high, and cut it perpendicularly into inch strips, which you paste, the first inside the left *side* of the box, the second on the right side of the first upright board, the third on the right side of the second board, and so on; so that any one on the right of the box, at a certain point of view, will see the picture as an entirety, since the edges of the board are nearly unnoticeable. A third picture of the same size as the last, cut into inch strips, is pasted on the other side of the boards and on the inside of the right side of the box, which looks perfect to any one on the left of the box. Therefore from before and from either side a different picture can be seen in the same box. Signs are thus constructed, of letters instead of pictures, which read differently to

those coming up the street either way or are on the opposite footway.

So far this is merely an optical illusion, and to make it a magical apparatus a slight modification is required.

THE TRANSFORMING PICTURE.

Let the boards on which are the cut pictures be not fixtures in grooves, but set on hinges at the back, so as to be drawn by a wire into lying flat either to the right or left. Thus the picture on the back of the box will not only be totally covered by them, but, whichever side of them is presented, another picture is seen by the spectator, who—the movement being accomplished noiselessly—may well be puzzled to account for the change, which can be repeated by reversing the movement.

THE CHINESE TOP TRICK.

Some twenty-five years ago a Chinese man-of-war, on a voyage around the world, made a stay in New York Harbour. The chief officers were well received by the merchants, who are rarely blind to the gain in cultivating friendly feelings with possible customers, and in return the Orientals feasted them on board their vessel. Among their native entertainments, none excited more amazement than the performances of the company of jugglers, part of the retinue of the captain and learned men attached to the ship. Indeed, the officers were entreated to let them perform on shore at the houses of the merchants during evening parties, and, their successes being reiterated, some one of a speculative mind induced eight or ten of them to desert, lie *perdu* till their ship had sailed, and then, for a living, to give public performances at the Broadway Theatre. They executed many novel feats—the pinning a man to

a board with knives thrown from a distance, balancing, tight and slack rope dancing with umbrellas in lieu of balancing-poles, keeping jars containing children in motion in the air with their feet, and the huge top which, contrary to all laws of nature as previously understood, spun with its peg on the end of a string, ran along a string across the stage through cages wherein were bells, which it rang, &c. After a while, the *troupe* broke up, the members learning English, and going off as "stars" of travelling circus shows, or settling in New York as cigar-dealers, and so on. Of one I learnt the construction of many of their ingenious pieces of mechanism, and introduced the top in my own performances. A few years ago the two Japanese troupes of acrobats and jugglers, Professor Risley's and another, which gave entertainments in London and elsewhere, brought out this same top-spinning feat, and the same reception of wonderment greeted it.

Like most of the deceptions here made clear, the means towards surprising ends are simple.

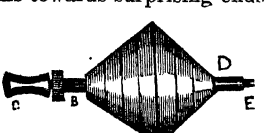


Fig. 84.

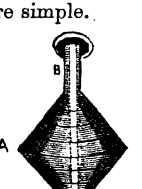




Fig. 86.



Fig. 85

The top, though to appearance like any common top, made of peg and body in one, is composed of four pieces, each of which plays its part in conducing to the phenomena. A is the body, two inches in length and three in diameter, to which is joined a fixture B, an inch length of quarter-inch stuff, either wood or

if the body is of light wood, let this head and pin be of hard wood; if of metal, say hollow tin or brass, the head and pin will be a cylinder of the same. The materials are to be light and strong, and that is all. Through the centre of the top is bored a hole, into which fits a rod C, three inches and a quarter long—that is to say, it projects a quarter of an inch below the top; its upper end terminates in a handle, by which it can be held while the top revolves freely on it as on an axle. A little above its end is a hole pierced, or a groove round it, by which can be fastened a hollow metal cylinder D, with its lower end (shown in D 2) closed up, and a small hole bored in it. A piece of hard wood or iron wire, half an inch long, E, ends on one part with a point, on the other with wedge-shaped cut, and is retained inside the cylinder D, as shown in fig. 86, by the turned up end of the cylinder (D 2).

Fig. 87.

To put the parts together, begin by thrusting the rod C through the top downwards, and, having dropped the loose peg E into the hollow cylinder D, put the latter on the end of C, and make it fast. The apparatus is now complete.

To Spin the Top.—Between the head of B and the top itself wind a cord several times around, so as to cover all that space, holding the top by the head of the rod C and the head of B, which prevents either turning. On withdrawing the string by a steady forcible movement of the right hand, and releasing B, the top spins,—

you may still hold it by the head of C, or place it like an ordinary top on the table or floor.

Performances.—Practice will enable you to spin the top in the air and catch it on your hand; to take it up on the hand—palm or back; to spin it on the tip of a finger. The groove in the peg will aid other feats, such as setting it on the edge of a sword-blade, up and down which it will run, spinning, as you raise and lower the weapon; on a smooth cord or wire, stretched, gently inclined, from point to point, even a considerable distance; on the end of a string, where a knot prevents it slipping altogether off, either at right angles to it, or at an angle of forty-five degrees. In its running along a wire feat, the *finale* is to have the wire lead through a little Chinese temple, where a box full of cut gold-paper has a hinged bottom held up by a spring, which the top must strike on its road: its emerging amidst a cloud of golddust has a very pretty effect. The top also spins on its head, on its edge, on a wire or string loop, around the rod B, &c. If hollow, a hole bored in it, or a whistle inserted, makes it a musical top. If large—and we give the dimensions one-third less than that of the ones we have used in public performances—a bell or two can be placed inside, with three or four loose copper or brass bullets, the contact of which causes a pleasing tinkling. The top can be painted and gilt profusely after Oriental designs; a gold and black lacquer is effective; but there is no limit to adornment in barbaric taste.

THE BIRD WHISTLE.

There are two ways of imitating such birds as the canary, lark, thrush, &c., in each of which water plays a part. First, take a toy teapot, and remove the spout;

make a whistle at the lower end of a quill, and fit that end to the hole where the spout came off. Fill the tea-pot half full of water, and, on blowing the whistle, the agitation of the water by the passage of the sound-waves through it will give the trills desired, which can be modulated according to taste. Second: make a whistle in the middle of a piece of willow, elder, or kindred wood, six inches long, and let the end not to your lips be under the surface of the water in a tumbler. The same effect is produced as before. The high tone resembles the canary's; a lower pitch, the lark's, black-bird's, &c.

MUSIC CEASING AND RESUMING ITS COURSE AT COMMAND.

If you suspend a heavy weight to a cord wound round the axle of the cylinder of a barrel organ, gravity will cause it to work the machine. A very simple arrangement of a wheel worked by a spring ratchet catching at teeth in its outer edge will enable you even at a distance to stop and to make recommence the music. The organ itself can be set in concealment behind an automaton organ-grinder, who can thus appear to obey your orders.

TO IMITATE TRUMPETING ON THE VIOLIN.

Let a bridge of wood be made in this form:—

Fig. 88.

Put under the strings, it makes them sound one tone higher, except the fourth and fifth. On playing a lively, dashing tune, the music will have a strong resemblance to that of the trumpet. The fourth and fifth strings lie under the bridge, and escape the heightening strain designedly.

TO DRINK WINE AND SNEEZE COIN.

Have some coin in your pocket-handkerchief. Drink a glass of wine, and, very naturally, lift your handkerchief to wipe your lips; suddenly exclaim, "What a singular flavour! quite metallic, that wine," and, sneezing, open the handkerchief as you lift it again, when the coin falls. At the same time, carry your left hand, in which you have a few sixpences between the ball of the forefinger and thumb, to the glass, and, turning it upside down, say, "No wonder, when I was drinking this!" and let fall the coin as if from the inverted glass.

TO HAVE FRESH FLOWERS IN WINTER.

At the season of flowers blooming, cut fine ones with a few inches of stem, and dip them entirely in melted wax; wrap them up so coated in tissue paper, and put them on a layer of fine sand in a box, and cover them over with sand. Put away in a dry place. When wanted, take them out, tear off the paper, chip off the wax, and put them in water, in which is dissolved a pinch of salt or saltpetre.

TO EXTRACT THE CENTRE PIECE OF THREE PAPERS ROLLED UP TOGETHER.

Cut a strip of paper, one inch wide, into three pieces, one six inches, one five inches, and the third four inches

long. Lay the long strip down, and on it the next longest, and lastly the small one; one end of each of the latter to be placed even with one end of the long one. Now roll them up from that end, the long one outside, so as to make a cylinder as thick as a lead pencil. It seems impossible to extricate the middle, or five-inch strip, from the cylinder without touching the little one.

Unroll the cylinder a little until the end of the middle piece appears, which you seize in your right thumb and forefinger. Hold the cylinder between your left forefinger and thumb at each end, so that it can turn round like a wheel. Pull the middle band, and it will come out, and leave the little one unseen, and the outer strip but little unrolled.

AN EGG ENCIRCLED BY A WEDDING-RING.

Soak an egg till the shell is flexible, in vinegar or weakened acid. Pull it half through a ring, and leave it to get hard in cold water. If varnished, it will remain an amusing sight.

TO DRAW WATER FROM A KNIFE.

Be prepared with a bit of sponge or cotton holding a few drops of water, to be hid behind one ear or in the coat-collar behind. Take two knives, and let them be examined, to prove their hilts are solid, and altogether dry. Make some flourishes with them, during which you get the sponge in one hand—say the right; then, holding the sponge between your fingers and the knife handle, scratch the latter with the other knife point, at the same time pressing the sponge: a drop or two of water will run down. Throw away the sponge.

A BLIND.

After you have excited wonder in a few of your tricks, you are sure to have several pairs of eyes upon you, whose sharp owners will be delighted to catch you tripping. Turn the laugh on them beforehand by such a means as this. Let us say you are putting some object under a cover. In turning away, carry your hand to your pocket, as if concealing something. Some one will declare that you had not left the article under the cover, but only pretended to do so. Whereupon, you will lift the cover, and expose the object. This is sure of a laugh. But, in putting on the cover, really convey away the thing; so that the very attempt to perplex you becomes a means of furthering the ends you have in view

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THE JAPANESE BALL TRICK.

A ball is shown to the audience, through which freely passes a silken cord, decorated at one end with a tassel, and at the other with a ring, which can be slipped on the forefinger. The ball is totally devoid of any mechanism whatever. The tassel being put under one foot, the ring slipped on one finger, and the cord drawn moderately tight in a perpendicular position, the ball is let run down the cord. This can be done again and again; but the performer makes the ball stop at any part of the cord at his own pre-announced wish, or at the spot decided on by the audience.



Fig. 89.

Explanation.—The hole by which the cord threads the ball is at either opening wider than the cord, and apparently runs straight through it; but there is, in reality, a deviation from the straight line in the perforation; therefore the least tightening of the cord, which



Fig. 90.

makes it straight from end to end outside the ball, gives the part of the cord within it a firm hold by friction, which checks the slipping of the ball, whatever its weight. By practice, the slight movement of the finger which holds the upper end of the cord will be imperceptible to the lookers-on.

THE MAGIC COFFEE-POT.

Preparation.—A coffee-pot is made of tin or electro-plate, in the manner of the pneumatic magic bottle and funnels, as shown in fig. 91; to each of the two compartments B and C is a pipe, H and G, connected with the spout, and another through the hollow handle to the small air-holes E and F. Take off the cover, and fill B with coffee, and C with milk, and cork up those openings, and put on the lid. As long as the openings in the handle are covered, which is done naturally by the thumb,



Fig. 91.

not a drop can go out by the spout, and the pot seems being promised from the empty pot, you ask whether it is to be with or without milk, and, by releasing one or the other or both the holes in the handle of pressure, you can pour out café-noir, café-au-lait, or coffee and milk together.

RUBBING TWO RABBITS INTO ONE.

(*Herrmann's unrivalled Feat.*)

You will require a table with a trap, disguised by the surface of it being laid out in geometrical patterns, which conceal the outlines.

Take two rabbits, guinea-pigs, or handkerchiefs, and show them to the audience. Holding one in each hand, and seeming to rub them together, you can make that in the right hand cover the other completely, and so push it down the trap unsuspected. Then ceasing to rub, you hold up the remaining animal alone in his glory. To a skilful hand the trap table is not needed, for a pocket in the table, a bag behind it, or on the person, will suffice for the disappearance of the object.

Note.—After having performed this trick several times before the same audience, you may justly fear that the table is suspected of complicity with you. It will be well, therefore, if, dividing your entertainment into two parts, by dropping the curtain for a few minutes, you have the trap-table substituted then for one, exactly alike outwardly, examined by the audience in the early part of the evening.

THE MAGIC EXTINGUISHER.

A candle being lit on your table, you speak of its being unwanted, and clap an extinguisher upon it; on lifting off this cap, the candle has disappeared.

Explanation.—The candle is hollow, and adapts itself perfectly to the cavity of the extinguisher; the top has a bit of wick soaked in wax or oil, which only burns till you put on the extinguisher, and remains in the bottom of the mock candle, which is only a tin case.

TO DIVIDE WINE AND WATER WITH TAPES.

(*Petorelli's celebrated Trick.*)

Preparation.—Have three tin covers made, half-egg shaped, an inch and a half on top; on two of these covers is soldered a piece of thick brass, copper, or lead, quarter inch thick; in the centre bore a hole, the same in diameter, two inches from the top, and on the inside will be a water-tight partition or floor, through the centre of which make a small hole. Fill the tops of the covers, one with water, the other with wine, then cork them well to exclude the air, and, consequently, keep the liquid from coming out at the small hole made in the centre of the partition. Into a tumbler put as much water as there is water in one of the covers, and cover it. Then put about the same quantity of wine in another tumbler as there is in the second cover, and place that cover well over it; now have a tumbler with a hole through the centre of the bottom (made with a drill or diamond), closed with a long peg from the under side. In your trick-table have a small auger hole in which the bottom of the peg is held firmly. Cover this tumbler with a similar cap to the others.

Performance.—Take off the covers of the tumblers having wine and water, and mix them. Pour both into the perforated tumbler, replace the tumblers and cover them. Lift up the perforated tumbler, concealing the peg with your hand; place it back with peg through the hole, and cover it over. Take a red and white tape

one made of tinfoil and quicksilver. This can be heard to drop down the gun barrel, but it will fly into minute particles on leaving the gun. The human target meanwhile puts the real bullet into his mouth, and when the report is heard, shows it between his teeth. Nevertheless, it is a poor feat to run such a risk for. Far safer, if not far better, to employ a *prepared* gun. (See *Gun Tricks* in our other books.)

THE MAGIC RINGS.

Have half-a-dozen rings made of steel, strong iron, or brass wire, a foot in diameter; one set of two and one set of three are made by linking so many together, inseparably; one is solid; one or two more have a cut in them, which is imperceptible from the spring of the metal closing it up; moreover, this joint is always concealed between the forefinger and thumb when not in motion. Other loose ones can be handed round for inspection, the above being held together in the left hand, or on the left arm. Clashing them together, you make some flourishes, and show the pair, as if you had joined them together. Again flourish, and produce the three as the pair with an added one. The three and the pair can be linked together by the split one, and so on. You can, if the metal is good steel, throw one ring up in the air and letting it strike the split ring on the edge by the cut as it falls, it will link itself on it too quickly for the means to be seen; you can also pretend to rub one through another; other manœuvres will suggest themselves. Bear in mind that having one of the separate solid rings always disengaged will serve you to give it out for examination instead of the split one, in case of the challenge.

INFLATING A BALLOON WITHOUT FILLING.

Into your balloon—that is, a sheet of thin india-rubber, or a dampened bladder—put a teaspoonful of ether, and tie the mouth up. Pour hot water on the outside, when the ether becoming vapour, the balloon will be swelled out.

THE CADDY FOR CHANGES.

It seems absurd that, after you have cut up an orange, under the eyes of the bystanders, and put the pieces inside a tea-caddy, with the cover on, you should aver you can restore the fruit. Nevertheless, on again taking off the cover, and dropping in a thread, all the pieces are fished out strung on the thread.

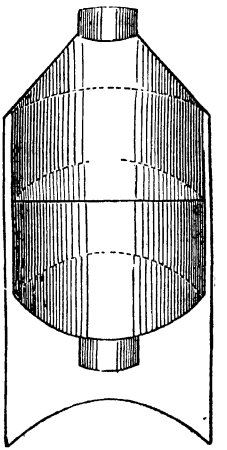


Fig. 94.

Any other articles can be cut up, burnt, or otherwise reduced to irreparable remnants, and none the less be restored.

Explanation.—The caddy is a hollow
without ends, up and down in which
headed caddy, just easily enough not
effort to move it, but keeping whatever pi
moves it to. Having put the cuttings in the upp
(1), you must manage unperceived to turn the appara
tus upside down, where, in No. 2 caddy, are the pieces
of an orange threaded as described.

WARMTH OF DIFFERENT COLOURS

Place upon the surface of snow, in bright daylight or sunshine, pieces of cloth of the same size and texture, but of different colours, say black, blue, green, yellow, and white: the black cloth will soon melt the snow beneath it, and sink downwards; the next the blue, and then the green; the yellow but slightly; but the snow beneath the white cloth will be as firm as at first

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TO SWALLOW A BARBER'S POLE.

Cut three sheets of tolerably stiff paper into strips the longest way, three inches wide; mark off into inch divisions, and colour both sides, one edge red, the other blue. Paste all the strips to form a long band. Magicians have a reel to wind such bands up, but you can do it on a round ruler. Leave the centre end folded over so as to present itself to be pulled out. Take this compact roll up in the hand with some bookbinders' paper shavings, and in pretending to fill the mouth with the latter and chew them, insert the roll. Give the centre end a sharp but steady pull, and the whole will draw out the length of your arm. If well made, and not pulled out too far, you can push it back to its former state.

For permanency, there is substituted for the paper

the Mountebank's Pudding, that is, a dozen tin hoops, so made as to fit within one another, each in the next largest, and covered with cotton to deaden their sound. Their own weight, when the large one or small one is held up, makes them slide out so as to form a long cone.



THE MAGIC CARD-CASE.

In "The Secret Out" we explained how from a pack of cards in a case set on top of a decanter those cards would leap up which were called by name. That required the aid of a confederate. Here we show the means of obtaining the same success by a little simple machinery being the assistant.

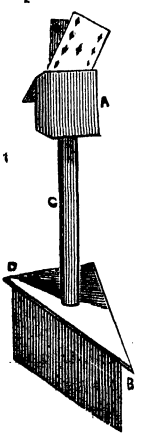


Fig. 95.

Preparation.—Two cards are chosen by the audience from the pack, and replaced with the others; you put them all in a case A on top of the pedestal B.

The persons who selected the cards are asked to name them, and in that same order the two are seen to rise from the pack, and leap free from the others.

Explanation.—The column C is a tube; the foot B is a box. Within the lid D is a trigger, which opens and shuts a hole just where the lower end of the tube is screwed into its centre. The trigger is worked by the performer where the audience cannot see it. The tube is filled with fine sand, dry, the trigger being closed. At the top of

the card-case, across it, in the middle from side to side, is a smooth round bar, with a groove in the centre, wherein a thread will run without getting out; the thread is fastened at the front of the case in the middle, by one end, and the other end is brought over the pack, down, under the second of the cards to be called up behind it, over half a dozen cards of no importance, down behind them, and the first card to be called being there placed, up behind it and over the bar in the groove; now attach to the end a leaden plug, just fitting the interior of the column. On touching the trigger, the sand flows out of the tube, and the weight sinking as gradually the tautened thread pulls up the cards with a steady, mysterious movement. It is a duplicate pack which occupies the front part of the card-case; and into the other portion of it, where it does not interfere with the working, you put the pack drawn from. You "force" the audience to take those cards of which you have a similar pair ready on the

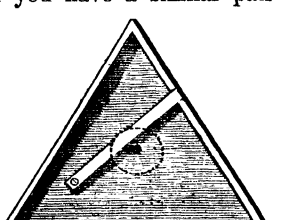


Fig. 96.

thread. The machine is prepared by setting the trigger, as shown in fig. 96, to retain the tube full of sand, and placing the duplicate cards on the thread as directed.

THE MIRACULOUS GROWTH OF FLOWERS.

A handsome flower-urn is brought forward, full of garden mould, on which some seeds are sprinkled, and a marked coin or borrowed ring set. A cover is put over it all to exclude air and light, known to be so unfavourable to the development of magic vegetation. On lifting the cover, the urn opens out in several pieces, exposing a bouquet. Something is seen shining in the largest flower of the group, and, hastening to open its petals still more, you find it is the very coin or ring which had been planted amidst the seed.

Explanation.—The urn, which may be square, six or eight sided, or round, with fluted sides, is encircled for an inch deep at the top by the turned-over edge of a shallow pan, in which mould is placed, and on which the seed and a duplicate ring is planted. The interior of the urn holds a magician's bouquet, or, in other words, a bunch of flowers of painted sheet iron, so made that the leaves fold up into small compass, but expand when released from pressure. In removing the cover, you carry away the false top, and at the same time remove the band which its turned-over edge formed around the top of the parts of the urn; they open out, like the gigantic lilies which enclose fairy-queens of pantomime, and the flowers, freed from all restraint, expand under the eyes of the company. Of course, the ring is not there, but you pretend to see it, and in putting forward your hand, you hold the ring between finger and thumb, and seem to pluck it out of the flower.

THE BIRD IN THE FLOWER

Make a rose or tulip out of cardboard or tin, fasten it on a stem with little springs which shall force open the

petals (see *The Magic Rose*, in "The Secret Out"). Leave in the centre, when the petals are closed, room enough to hide a small bird, or other little creature; push the flower down into a cylinder, which will keep it closed. On it being pushed up through the case, the leaves will spring open, and the prisoner leap or fly out.

THE TEMPLE OF BALL.

You show to the audience a small toy house, in the front of which are three doors, opening outwards if pushed from within, but kept closed by a spring. A ball is given to be marked, and may be dropped down the chimney in the centre of the roof by any one.

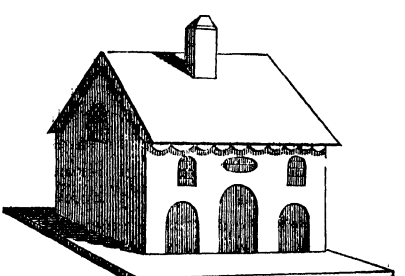


Fig. 97.

Nevertheless, the ball will roll out of that door of the three which has previously been indicated by the audience.

Explanation.—On being let fall down the chimney, the ball enters a tube, which leads straight to the centre door; but at two points on its line are valves, the mouths of two other tubes, into which the ball falls by

its own weight when those valves are open, and which lead respectively to the right and to the left hand doors. These valves are opened by a lever, similar to those on accordeons, worked by a wire, and closed by a spring. Two little knobs, imperceptible, thanks to the edge of the stand being studded with brass nails with the same pattern heads, are under your hand when you hold up the house to have the ball dropped in, and your fingers press either at pleasure.

THE VANISHED WATCH.

The box used for making coins, &c., disappear, although it is locked and held during the performance by a spectator, has been explained in "The Secret Out." Its secret is, that a door in one end lets the article slip out into one's hand, even while you are in the act of giving the box to be locked up. In such a box a watch is placed, and after it is fastened the watch is heard distinctly ticking. Nevertheless, on opening the box, it is found quite empty, and necessarily the ticking is not heard.

Explanation.—In the side or bottom of the box is concealed the movement of a watch, with a wire connecting with the catch on which the lid descends, in such a manner that when the lid is close shut the watch movement is set going; on the lid being lifted and that pressure removed, the mechanism stops.

This is one of Robert Houdin's inventions.

THE MAGIC PLATE.

A lady's ring, or a marked coin, being placed in the centre of a plate, either of china or metal, it appears to

remain there, although it is in your hands to be disposed of where you will.

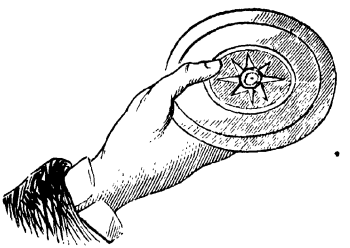


Fig. 98.

Explanation.—There is a hole cut in the middle of the plate, which is concealed by its outline forming that of a star-centre, or other figure, painted or chased on the upper surface. The hole is about the size of a finger-ring, or florin piece, and is covered by a piece of metal or china, as is most fit, underneath, which slides at a touch from the hole, to let any object thereon fall through into the hand beneath. The circular lines of the pattern will seem to the audience, if not too near your table, those of the ring or coin.

The multiplying salver, by which a certain number of borrowed coins have others added to them by simple contact with the plate, is a modification of the above, which we have described in "The Secret Out."

WINE CHANGED INTO GRAPES.

Taking up a wine-bottle, you fill from it two or three glasses, and then, after having let the company examine a plain leather cap, cover the bottle with it. After a

few flourishes with your wand you tap the cover with it, and lift it off to another part of the table, discovering a heap of grapes, which has taken the place of the bottle.

Explanation.—Take a cone of metal, like an extinguisher, half as long or so as the bottle, with its mouth just too large to slip inside it when inserted point down, and the better to prevent it being pushed in, cut the edge a little, and pull out little ears in it with a pair of pliers. This cone will hold enough wine to fill a few shallow glasses. Thus you have nearly the whole interior of the bottle yet at your disposal, and into it you put a quantity of grapes, raisins, or, for the matter of that, any dry substance which flows out freely. The bottom of the bottle, just within the outer edge, is moveable in one piece, on a hinge at a point, with a catch opposite, which is easily released when you put the cover down upon it, or when you take it at the bottom to lift it up. When, therefore, a grasp of the cover takes up the bottle within it, the bottom opening releases the contents.

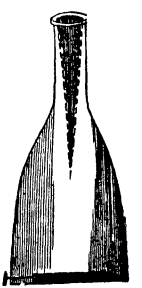


Fig. 99.

—— HEAD.

To have a Card picked from the Pack scattered in the Air by an Inanimate Figure.

One of the audience is let select a card, which is returned to the pack, and shuffled with the others. A stand is brought in, being a column surmounted by a gilt or painted head, the base of which is hollow, and forms a box where the pack is put. At the word of command the closed door of the base flies open, and the pack is thrown out into the air, falling dispersed, except the chosen card, which appears in the middle of the figure's face.

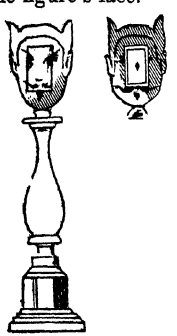


Fig. 100.

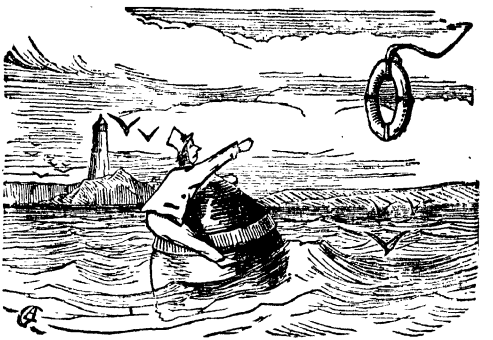
Explanation. — In the base a simple coiled spring of steel tape will suffice to cast out the pack; the catch of it is released when you push in the pack, but the door is arranged to move outwards with resistance until it passes a certain point, when it freely opens; the cards are thus expelled forcibly. You forced the company to take a certain card, of which a duplicate was already in its place in the head. The illustrations show the front and back views of the head; in the former, the face is painted on a piece of sheet iron, which turns on pivots in the centre of the upper and lower edge; on the back is painted or pasted the duplicate card.

The movement which releases the spring at the base of the stand lifts a catch on one side of the let-in plate, which, by the action of an elastic cord, wound once round it or a springy wire, executes a turn upon the

pivots, so that the card on the back is now seen in the front.

THE HAMMER OF THOR.

An egg, apple, or orange is taken up from a number of them, but pronounced not to be good; you lay it on the table, and, catching up a hammer, which is happily at hand, you strike it a blow to break it. On lifting the hammer, you find that you have outdone Charles Martel himself: he smote a foe to fragments, but you annihilated the egg. However, it occurs to you that you may have driven the egg *through* the table, without a trace of its passage. True! but does not lightning pass through solids without a mark of its route? So saying, you run your hand under the table, where, sure enough, you secure the egg. Whilst the incredulous spectators are examining the egg you had better look to the hammer, which will repay inspection. The head of it is hollow; one end is solid, but the other is closed with two little doors, kept shut by spring hinges, which open from the inside both ways on the egg being struck by them, and close as soon as it has been forced past them.



TRICKS WITH APPARATUS AND CONFEDERATES.

We have now come to the highest stage of modern magic, where the help of a subordinate, generally quite unseen and unsuspected by the audience, and secret mechanism, enable one to perform feats as incredible as the fables of the ancients. Here we have space but to lay bare those performances which do not illustrate the discoveries of chemistry, electricity, magnetism, and optics, which will be given our attention later, as well as in a subsequent volume.

Elaborate as may seem the means by which the following surprises are obtained, a closer view will show that they are readily managed, and, after all, differ merely in degree from the child's trick of the three pieces of paper, "Fly away Jack!" the great original of Hankypanky, of which the earliest performance was unrecorded when the Assyrians were young.

DRESS.

There are two modes of appearing to the audience; one as a foreigner, such as an Oriental, and therefore in the flowing robes of India, China, or Japan, most favourable for concealment; or in plain evening dress in vogue. A court-suit would be imposing to one of a fine figure, as well as suitable for aiding one's experiments.

In any case you must have the dress prepared with pockets, more numerous and in different places to where they are habitually made. You will find only by practice exactly where they will be placed most handy.

SPEECH.

There are three ways of addressing an audience while you perform your feats. The school of Bosco and Dobler prescribes the pronouncing of old adjurations by ancient magicians, such as, "Spiriti mei infernali, obedite!" (My demons, obey me!) The second way is merely to utter at the stage of a performance where the audience's attention is to be diverted, a set phrase, namely, "Hocus pocus, tontus talontus vade celeriter jubeo!" or, "Presto—pacillo—pass! quickly!" For ordinary entertainments among friends, invent some burlesque or macaronic Latin sentence, "Rustyfusty—susfiticum overi carpitorum aiditer mei!"

THE CONJUROR'S ASSISTANT.

The majority of deceptions can be performed by one's own self, but when it comes to mechanical appliances and the treatment of borrowed articles secretly out of the room, an accomplice in the craft is necessary.

A brother or relation who is bright and nimble, without being mischievous, can easily be tutored to assist you. The audience must be accustomed to his coming in and going out of the room very frequently, but more often than not without being on any material errand whatever, so that no one will be watching him too closely when he is indeed carrying away some article to be inspected, placed in a piece of mechanism, or done up in a dainty manner before being returned to the owner.

The professional magicians have sometimes coloured youths, as a visible link of connection with the Black Art, and dress their assistants up showily; but for private entertainments, your aid can scarcely present a better appearance than in the dark suit of an ordinary young English gentleman. If it is a servant of yours whom you employ, a livery or a page's dress will be quite imposing enough.

APPARATUS.

In giving figures and explanatory directions for the making of magical implements in this work and our others, we have said little or nothing about ornamentation.

The tools of the *prestidigitateur* sold in toyshops and by the exclusive dealers in such goods are, in too many cases, vulgarly overlaid with gilding and barbaric work. The main thing is to have a material (hard wood, or metal, for instance) and an exactness of construction which will deprive you of doubts on the durability of the machines. There must never be a failure in the works of your boxes, cups, table-traps, &c., before the public, as one such mischance may spoil all the evening's sport. Therefore, have your mechanical aids made

thoroughly well, of plain, solid materials; and if, for impression's sake, you find adornment is desirable, let you yourself, or a sister, or lady friend, who has an eye for colouring, decorate the outsides as profusely as taste dictates.

Remember, the Magician of the Halls of Diablerie has to dazzle the eyes of the gallery gods, whilst your audience will pay less attention to gauds, and more to the results of your experiments.

In this way, twenty shillings will provide you with a trick for which, in a tinsel-covered state, five or more guineas might be charged you.

A MAGICIAN'S BURLESQUE PLACARD.

On either side of your little stage whereon you exercise your art the decorations may comprise a shield, ornamented in mock heraldry with the juggler's insignia—cups, wand, sword, cards, hieroglyphical signs, &c., and a comic placard, founded on the following assertions:—

"By Desire, there will appear Signor Puscellino, native of Whangfobia, Doctor of Pyrotechny, A.Z.X. and R.S.V.P., Professor of Chiromancy and Letnomancy, known as Light-fingered Hieronimus, who has passed all the degrees in every Academy of Europe, Asia, Africa, America, and the Isle of Man, for algebra, mineralogy, topography, middleography, hydrodynamics, and low-drodynamicalogismatics, as well as the occult, mystic, and transcendental sciences, such as cabalistics, busology, astrology, superstitions, animal magnetism, alchemy, and divination.

"As Consulting Secretary of the Grand Mogul and Oriental Magi, he has devoured the burning ices of the Poles and the tallow of the Cossacks, and has resided

for a brief term of nine hundred and thirty-one years, seventy months, and forty-four days with the East Indian mountebanks, who taught him how to save himself from shipwreck by always travelling by railway.

"From East Barking and Bellowchistan he brings talismans to discover policemen when a robbery is being perpetrated, and foretells the past without the use of Cornelius Agrippa's mandragora or Albertus Magnus's salamander sermons. He possesses the wick of a Jack-o'-lantern and the bridle of a nightmare, not to mention the elixir of life, Cagliostro's powder, St. Germain's potable gold, the staff of the Wandering Jew, the bauble Cromwell had taken away, and the sword for which Balaam wished.

"By the perpetual movement of the philosopher's stone, it squares the circle, and strikes fire out of a block of ice on the darkest night of a lunar eclipse.

"He cures the toothache, not by hammering the acher out, or breaking the victim's jaw, but by decapitating the sufferer, engaging to pay five hundred pounds forfeit if his patient complains of non-success three weeks after this operation."

THE SPEAKING HEAD.

This deception, known anciently as the Decollation of John the Baptist, has been lately revived under several titles, as "The Sphynx," "The Head of the Decapitated Speaking," &c.

It is rather a ghastly subject, and the better it is done the less pleasant it is to witness. But we do not wish the reader to be left in ignorance of the secret springs of any known cheat.

A table is placed on the stage; between its fore legs

is a board papered or painted exactly like the wall around and behind it, in order that the audience shall fully believe that they see under the table. Another way is to have a centre leg in front, from which to each of the legs at the back a sheet of looking-glass is fixed, to reflect the floor, and seem to continue its pattern.

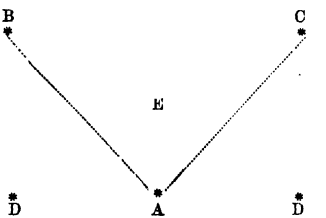


Fig. 101.

A, centre leg of table; B C and D D, the other legs; A B and A C, the plane mirrors, between and behind which, E, is an open space, where a man can easily bestow himself.

Formerly a long black cloth was hung all round the table.

The table-top is composed of two planks, in which is cut a circular hole, corresponding to one cut in the cloth, and permitting a man's neck to be encircled by it.

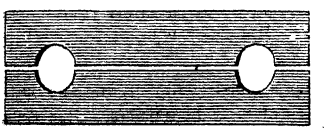


Fig. 102.

A wooden platter, silvered, or painted to resemble

crockery, is cut also to set around the man's neck like a collar.

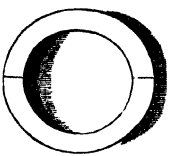


Fig. 103.

The man is arranged with a false body, as a figure in a tableau; or another man, whose head is passed down through the second hole, appears to be his body; but a dummy answers the same purpose almost as well.

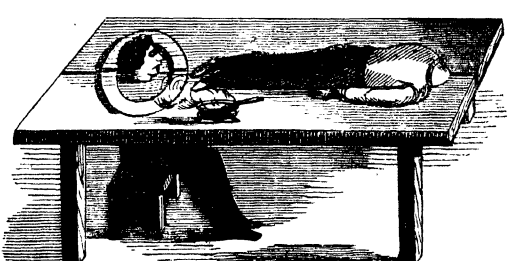


Fig. 104.

It is better, where the audience is not numerous, and therefore does not need the elevation of the figures, to have the man in a room underneath, and his head alone appear up through the floor, a couple of the planks being cut, as directed, for the table; the mock body can then be arranged more picturesquely, with an executioner's scimetar, or headsman's block and axe, as the story you must relate during the exhibition dictates.

Around the neck of the man on the dish wind a roll of dough, kneaded with bullock's blood, which blood will ooze out on the dough being pricked. To make the man's face—of course painted livid—still more terrible, you sprinkle some sulphur on coals in a brasier, or burn some spirits of wine and seasalt in a dish near the head.

THE ENCHANTED WARDROBE.

Now, if two mirrors of a certain size conceal a man sitting down, it is clear that two mirrors of other dimensions will hide a man upright. Consequently, if a box, lined and carpeted with tapestry of a geometrical pattern, is made, and from a post near its centre at front two mirrors are set at a certain angle, their planes coinciding with the diagonal lines of the carpet, precisely as in fig. 101, a man standing upright between them in the opening of the angle will not only be invisible, but, since the reflection of the sides and floor in the mirrors seems to show the whole interior, be unsuspected. Therefore, the wardrobe is opened to prove its emptiness, and the door locked, yet, on opening it again, a man or other object is seen within; or a person could be locked up in it very like the secret occupant, and his appearance with his *döppel-ganger* would create much amazement.

THE BRAHMIN SITTING IN THE AIR.

This feat, known to Europeans as Pretended Magnetism, or Etherial Suspension, was first practised by Robert Houdin, with his son as the *magnetized* subject, and then by Macallister, whose wife was the exponent. A person is shown horizontally extended in the air, with

only his elbow resting on the head of a cane, which, in turn, simply is stood upright on the floor.

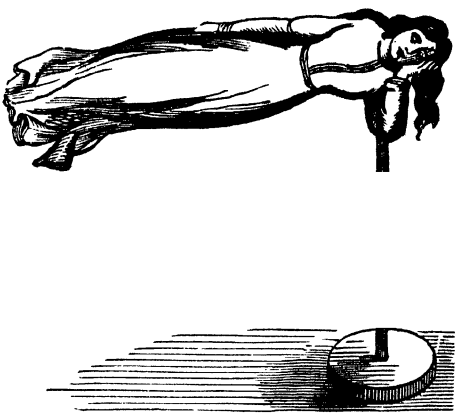


Fig. 105.

This is startling in its simplicity; but in our "All Round the World" tour with Bradley's Old Kaintuck Minstrels, we saw in India an itinerant juggler who performed the trick without pretending, for a wonder, that he had the piety of a Brahmin to sustain him on nothing. The preliminary arrangements were executed amidst a ceaseless clamour kept up by the fellow's assistants, to blind the spectators; and while placing him in position, they held four shawls around him, so that those on the ground could see nothing. I was in this unlucky state, but our harpist (we had lost the instrument at Alexandria, but the musician, though he played the clarionet and violin, retained the name of the capacity under which he was engaged) was up at the window of the house which our party had turned into an inn. What he saw from his height, ten feet above

animals — deer, horses, tigers, crocodiles, etc., also birds and fishes. The figures are perforated to represent the eyes, shape of the dress, etc.

"At the back of the shed, concealed by the sheet, sit the musicians, who keep up an incessant din on drums and cymbals." [1]

The puppets for these shadow-plays are usually cut out of deer-skin (not buffalo hide) and it is worth remarking that they are all considered to be more or less animated; a stringent propitiatory ceremony has to be performed in their honour, incense being burnt and rice scattered about, just as in the *Ma'yong* ceremony already described.

The present writer, while in Selangor, bought from a Kelantan Malay named 'Che 'Abas, a performer of shadow-plays, his entire stock-in-trade, including not only his musical instruments (amongst which were some curious drums called *gĕdu* and *gĕdombak*), but also his candle (with its shade), the rice used for the ceremony, and his entire stock of shadow-pictures, all of which are now in the Cambridge Museum.

The following classification of the more important kinds of theatrical performances, which was drawn up for the present writer by 'Che Hussein of Penang, the actor of whom mention has already been made, may be of interest, and will serve to indicate briefly their several characteristic features, though it does not profess to be absolutely exhaustive :—

[1] J. D. Vaughan in *J.I.A.*, quoted in Denys, *Desc. Dict. of Brit. Mal.*, *s.v.* Puppet Shows.



PLATE 23.—FIG. 1. HANUMAN

Hanuman, the monkey-god, used by Che 'Abas in the shadow-play of *Seri Rama* (the Malay Ramayana).



FIG. 2. PAUH JANGGI AND CRAB.

The *Pauh Janggi* or rose-dormer, used by Che 'Abas in the shadow-play. At the foot of it is seen the gigantic crab which is believed to be the cause of the tides.

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head, arms, legs, and trunk fall scattered on the stage. You are amazed, then horrified, then alarmed. You nervously take up the head, but it bites you, and hangs on your finger by its teeth. You finally get free. Ah! a brilliant thought breaks on you: you can repair the mischief. You take up one leg and go to the hanging where you set it up; admire your work. Place the other beside it. On turning, you are kicked: you have placed the left for the right leg. You rectify the error. On the legs you set the body, to it the arms, and on it the head, when the eyes roll and the figure marches out at you, and you fly by another door, followed off by the figure.

Explanation.—A dummy figure must be made, resembling your assistant in face, form, and dress, divided as stated. At the shot, these members are thrown out of the doorway. When you take the head up, you do so by a short wire at its mouth, which makes it seem that it bites you. When you set the legs, &c., up at the doorway-hanging you really push them through, your movements being hidden by yourself being between and the audience; and it is the man's own limbs which are shown. When completed, he walks out. The hanging is cut in strips (weighted with shot) where required.

A RING SHOT OUT OF A PISTOL FOUND IN THE BILL OF A DOVE, IN A BOX SEARCHED AND SEALED.

A borrowed ring is put in a pistol, loaded by one of the company. (For the manufacture of *Magic Pistols* see "The Secret Out.") An empty box is shown which is closed by a third person, who binds it round with a ribbon, and presses his seal on it. This casket

left on the table in full view during the trick. Nevertheless, after the pistol is fired, and the box opened, there is found in it a dove, holding in its beak the same ring as that rammed down the pistol.

Explanation.—Under the pretence of showing how the pistol is worked, you juggle away the ring, which is passed to your agent, for him to attach it to the trained pigeon's bill; by extending his arm under the trick-table—(for the *Magician's Table*, see "The Secret Out")—he opens a trap by which he can thrust the bird up into the box by its false bottom; the sealed ribbon around the box cannot prevent this, since the hidden door is in only half the bottom, and care is taken that the ribbon shall not be crossed twice, so as to forbid the introduction of the bird.

You must have a second pistol like yours, to substitute for it, which can be taken apart to reveal the absence of secret mechanism. Or, if you palm off a false ring for the borrowed one, you can have this duplicate actually bent and rammed down into the barrels and fired off.

For the manufacture of such boxes, see descriptions in this work and "The Secret Out."

THE DAMAGED HANDKERCHIEF RESTORED.

Borrow a lady's handkerchief, give it to a gentleman to hold, and instantly exclaim, "Dear me! what a pity you have torn it," and taking it from him, rolled up in a small compass, pass it away under the cover of shaking out a similar handkerchief, but torn. Say, "Now it is useless, sir; I cannot return it to the lady in that state. Here—you had better mend it!" Roll it up; but, in seeming to hand it to him, really give him a roll of cambric, composed of four lengths of three

inches wide, joined at the ends. On his unfolding thi or rather your seizing one end and unrolling it, yc declare, "It is even worse now than before. You reall cannot *go to the length* of returning this to the lady. Go to your table, and say, "The least I can do is t send it back perfumed." Pour upon it from a phial s spirits of wine. Upset a candle, and the spirits wi ignite and consume the handkerchief. Take up th dish, with grimaces at its being hot, and put it on th table, on the trap. Make several fruitless attempts t put out the fire; but, only at last, clap a cover on i lifting it up every few seconds to see if it is extinguishec The last time of lifting it, you affect surprise, for on th dish, now clear of ashes (thanks to the confederac of a substituted plate, with the original handkerchief ironed, folded, and scented), is the handkerchief, which i returned to the owner.

THE BALL IN PERPETUAL MOTION.

You take up a ball, and on placing it on the edge o the table it begins to spin round, as if of its owr volition. Probably some bystander will suggest the action of quicksilver. You at once seize the ball, and cut it into quarters, to show that it is hollow indeed, but empty. It may be advanced that there had been mercury within it, which you juggled away. You take up an ivory ball, and it no sooner is laid on the table than it rotates as the other in the first experiment. It is certainly solid. Mr. Goody, in a bright condition on this occasion, hastens to accuse the table of concealed mechanism. Upon which you drop the ball into an earthen pipkin, where it is heard revolving noisily. Rather confounded, it is some time before the sharp listener declares that the ivory ball is not moving in the pipkin, but the sound is made by a ball rolled round in a

dish under the floor, or in an adjoining room. Indignant, you catch up the ball and fling it at the wall; it strikes, but it does not rebound and fall: on the contrary, it stops where it hit, but then begins to move in a circle in a series of small rings, or *epicycloidically*, as the geometricians say (fig. 107.)

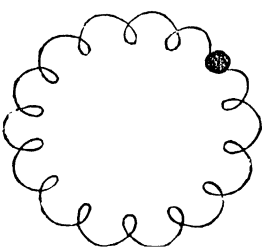


Fig. 107.

Explanation.—To make the first ball which revolves of itself, you bore various holes in different directions in the outside of a hollow wooden ball, and, putting some quicksilver inside, in sufficient quantity to move the ball easily by its weight, plug up all the holes on the outside with wood; wax the surface to fill up the cracks, and paint and varnish it all smoothly, to make it seem solid. On putting this ball in a dish, and giving it a slight spin or not, at pleasure, the quicksilver running in and out of the cavities within will impart an apparently endless rotation to the ball. You substitute a second one to be cut open, which is innocent of contents; the second ball is solid, except that a hole bored in it is filled with a plug of heavy metal to make it keep long in motion when once set revolving. You pretend to throw it at the wall. At the same time as your empty hand goes forward, you stamp your foot—a signal for your assistant to pull a wire and let a piece

of tapestry—a square of the papering or wall—drop like a trap and discover what seems to be the *same* wall—an inner surface, on which a second white ivory ball is seen to move.

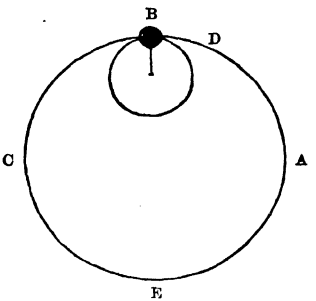


Fig. 108.

B, the ball fastened to the end of a rod, G, the other end of which is set on a pivot in the centre of a circular plate, A: this plate is immovable upon the large disc, A C D E, which revolves on its centre, of course carrying the small plate with it; the ball has, therefore, two motions imparted to it, which make it describe *epicycloids*. An endless band on the other side of the wall connects the small plate axis with that of the large one, which is turned by a simple crank and wheel.

THE INDIAN BASKET TRICK.

In a table is a trap; under it an elastic case, with a bottom of wood drawn up against the under side of the table-top by the action of four spiral springs, each at a corner; a valance with long fringe runs around the sides and front of the table. You lift up the fringe, to show that there is nothing beneath the table. You call your attendant, who answers you saucily; whereupon you seize him and cover him with a basketwork bell-shaped

cover. The child instantly slips through the trap, and his weight makes the folding-case—bellows fashion—



Fig. 109.

drop far enough down to give him room to lie there out of sight. Upset the cover, after having run a sword through it, &c., and prove that the boy has gone. In conclusion, either put on the cover so that the boy can get up into it again, or let another boy, dressed and appearing enough like him for the audience to perceive no difference, run out from behind the audience, appear at a window at a distance, or otherwise effectively cap the trick. For anecdote relating to this feat, and giving hints to vary it, see our work on "Ventriloquism."

Variation.—Put the assistant in a box, which is over a trap in the floor, through which he goes; and saw the box, and apparently him, across the middle. Cover the two halves of the box with a large cone, on the removal of which out leap two persons, your assistant and a counterpart, who came up through the trap meanwhile.



ROPE, RIBBON, STRING, AND THREAD TRICKS.

THE DAVENPORT BROTHERS' ROPE TRICK.

TAKE a rope eight or ten yards long, rather stiff, and cut it exactly in halves. Hide one half in the room or closet where you are to be shut up, together with a sharp knife. Let there be a strong nail, with a head or a hook in a corner of the same closet.

In being bound, keep your muscles rigid and not relaxed, and avoid having your hands tied behind you, though practice will enable you to care little about that. Resist such tight tying as stops the circulation of the blood, and fancy tying, as the "Tom Fool's Knot."

After being shut up out of the audience's sight, undo the most important knot by help of the nail, and, getting the knife, cut yourself free. Hide the knife and fragments of rope, and march out to the audience with

the duplicate rope in your hands. In case of a fear of the nail exciting suspicion, only have the knife, which



Fig. 110.

can be held with the teeth while you get one hand free to use it.

In the generality of cases, you can work your hands free, and wriggle out of the fastenings.

THE CIGAR RIBBON TRICK.

In opening a bundle of cigars, persons are thoughtless enough to throw aside, or even to cut the fancy ribbons which encircled them. Do not you repeat such folly. There is half an hour's amusement in each tape.

Take up one; it forms a link about three inches long. Spread it out on the forefinger of each hand, as in fig. 111.

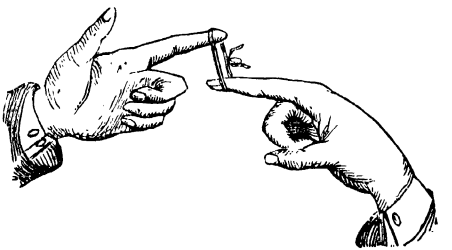


Fig. 111.

Turn your hands over one another as a "blind," or means of mystifying the bystander. Then close each forefinger over the ribbon, upon the top of the thumb of each hand.

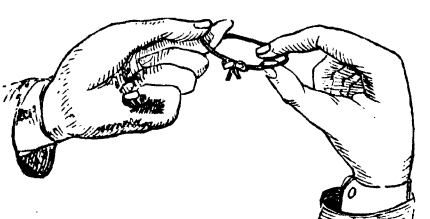


Fig. 112.

Now, by reversing the hands, putting the tip of the left forefinger to the thumb of the right hand, and the left-hand thumb to the forefinger of the right hand, and keeping the ends of the fingers together, you raise

the forefinger of the right hand and the thumb of the left.

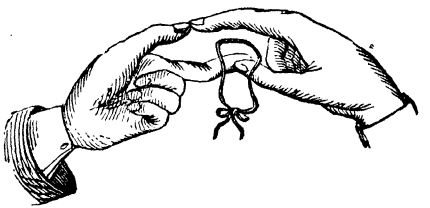


Fig. 113.

By this movement the ribbon is set at liberty. These three movements are to be made in rapid succession.

MOCK WORMS.

Fiddlestrings cut into two-inch bits, and placed on a warm plate, will make vermicular movements; you can gum small beads to one end to represent heads, if you like, and so further the illusion.

TO BREAK A STRING AT ONE PULL.

The string must be arranged as shown.

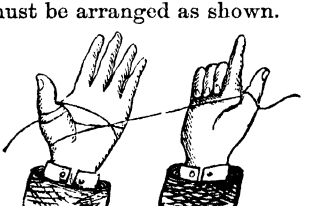


Fig. 114.

To break it, give the end in the right hand a steady jerk, when it will break at the point of crossing.

MYSTERIOUS COTTON.

Break a yard of cotton from the reel, previous to commencing, and conceal it between the left finger and thumb. Break off another yard, and request parties to cut it; then conceal the pieces between the right finger and thumb, and so be enabled to produce the piece you have concealed between the left.

A CURIOUS PRACTICAL JOKE.

In the days of perukes and periwigs, a Paris actress, fond of frolic, found means to fasten the ends of some thin strong wire to the pigtails of all the musicians in the band-box; the other ends were bound to a strong cord, which, in its turn, was fastened to the curtain-roller. When the signal was given, up went the curtain, and the musicians were left bareheaded, with their wigs dancing in the air.

TO SUSPEND A WEIGHT, AND CUT THE STRING WITHOUT ITS FALLING TO THE GROUND.

You tie the string in a bow, about the centre. Having done this, cut the bow, and the weight will, of course, remain suspended.

THE STRING WITHOUT AN END.

Tie the ends of two yards of string together, and hang it on your arm, of which you put the hand in your pocket.

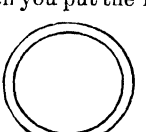


Fig. 115.

Or the strap of a field-glass can be used. Without moving your hand, you are to take the string off you.

Explanation.—Put the string through the armhole of your waistcoast—for you must have your coat off—over

the head, and through the other armhole. Put the hand underneath the waistcoat, and draw the string down around the body until it drops out around the waist, when it will fall to your feet, and you can step out of the circle.

SAMSON'S BOND.

Take a yard of string, and tie its ends together, and put it on the left hand, as in illustration the loop A

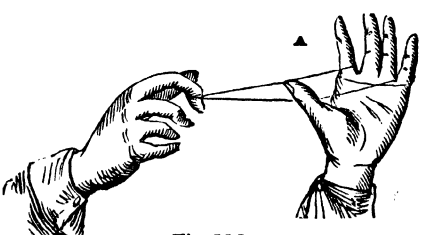


Fig. 116.

around the thumb, forward; and put the lower string of the loop A around the little finger, and the upper string

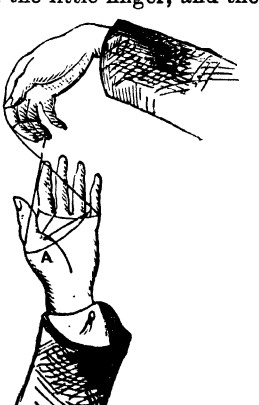


Fig. 117.

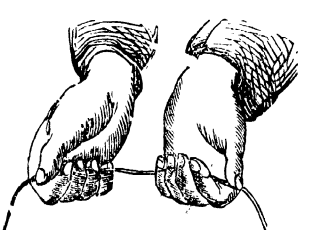
of the loop around the forefinger, as in fig. 117. Then pull down the loose string of the loop around the forefinger, as in illustration. Now let the long loop hang loose; lift both loops off the thumb, draw them forward till the string is quite tight, and then put them behind the hand, by passing them between the second and third fingers. Then pull the part of the string that lies across the roots of the fingers, and all will come off.



Fig. 118.

THE THUMB TRICK.

You state your ability to release your thumbs, though bound together; and, what is more, of tying them together yourself when released.



Place your hands side by side, palm up, and lay a piece of thick string across them, letting the ends hang

down; then bring your palms quickly together, at the same time catching secret hold of the middle of the string with your fourth and fifth fingers. Let any person tie your thumbs together as tight as he pleases; but you having hold of the string, it will only appear that he is doing so. Let him place a hat over your hands; then blow upon the hat, and say, "Upon the word, fly open, cord!" Slip your thumbs from under the loop. Have the hat removed, and show your freedom. On the hat being again placed over your hands, say, "As happy bride, be firmly tied!" while slipping your thumbs under the string again, and they will appear tied as at first. After performing the trick, substitute a duplicate string for examination.

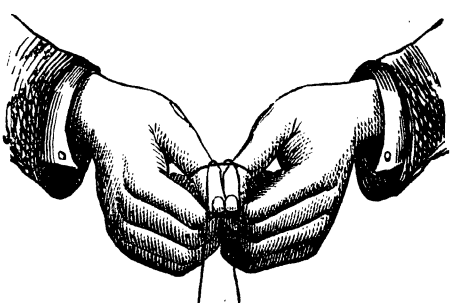


Fig. 120.

THE MAGIC TWIST.

Take a yard of rather thick string, and tie the ends together. Put one end on the little finger, cross the string, put the next finger between the lines, cross them in the same way, right to left, then the next finger, &c. On leaving the forefinger, do not cross the lines, but

carry them round the thumb and back again, without crossing them, one each side of the forefinger; then

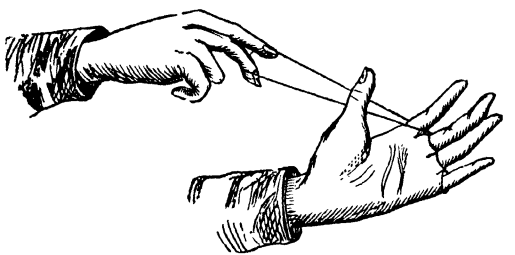


Fig. 121.

cross again before putting the middle finger between the lines; cross for the next two fingers, and hold the lines out, as in illustration. Take the thumb out, and, on pulling the string at B, it will all come off.

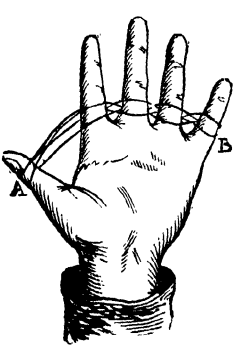


Fig. 122.

When played with the teeth of a rake, instead of your fingers, it is known as "The Haymaker's Trick."

THE PIN AND THREAD TRICK.

This is a simple variation of the feat last given. Into a stick, bannister, or post, thrust a pin, peg, or, what is handiest, a penknife blade, at right angles. Take the same string as before used, and hold it by the ends, which are untied. Let the middle rest over the knife on the stick, as in the illustration, line A B. Each end

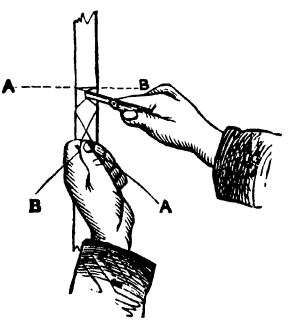


Fig. 123.

is now to be passed around the stick, with the end A over the other. Bring them to the front, and over the knife, so that the end A comes in the right, and B in the left hand, as at starting. Pass both ends around again, always keeping A over B, and hold both strings in the left hand, while you pull out the knife. The string will come off freely.

THE PRISONERS' RELEASE;

Or, the Chain and Manacle Trick.

In default of two pair of bracelets (in each of which is a small ring, to which is fastened the end of a steel chain, one chain to each pair), use string, or tape, and fetter and chain two persons—preferably, a lady and

gentleman—as in illustration. The puzzle is for them to release themselves, or anybody else to do so, without untying the knots.

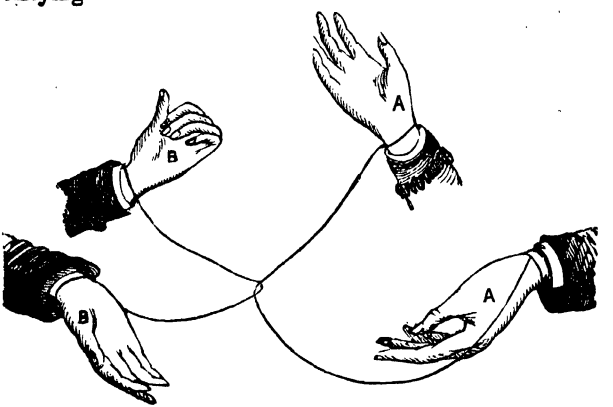


Fig. 124.

Explanation.—B makes a loop of his chain, passes it under either of A's manacles, slips it over A's hand (see Fig. 125), and both will be free.



Fig. 125.

Reverse this proceeding, and the fettering is reinstated.

Variation.—There is a simpler means of extrication, the two persons being attached as follows :—

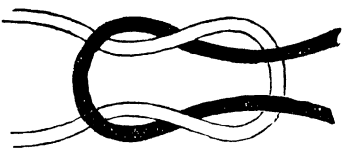


Fig. 126.

One of the two pulls the loop down under his feet, and so up his body over his head, when they become perfectly free.

THE LIBERATED PRISONER.

The story you tell is, that there was once a prisoner who was chained in a dungeon after this manner: on his legs were fetters with rings, through which rings a doubled chain was run, its loop being once through one

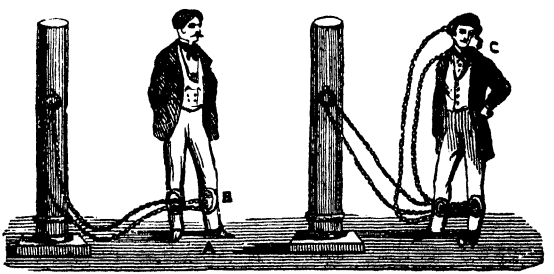


Fig. 127.

ring, and the ends then through the loop and on through the other ring to a stone column in the cell. Problem

how is he to get free of the chain, so as to begin to break prison?

Explanation.—Taking a pair of scissors as the man's legs, and the finger-holes as the rings, and string for the chain, place them in this position.

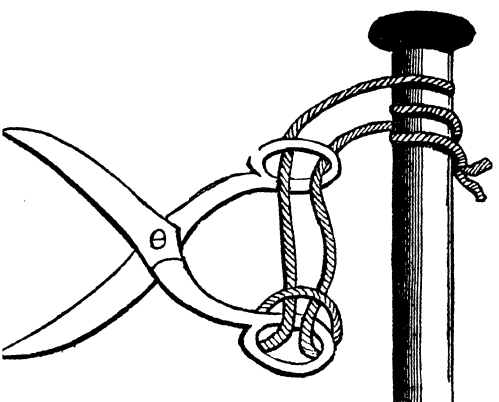


Fig. 128.

Take the loop end of the string and pass it along clear through the upper handle; then carry the loop still further towards the lower handle until it is passed entirely around the whole scissors, and you can then remove them, as the string will slip through the handles.

TO TAKE A KEY FROM A DOUBLE STRING IN SPITE OF THE HOLDER OF IT.

Tie the ends of a piece of string together, and pass it through a ring or key, and let it be held on a person's

thumbs; or two persons can hold it. Nevertheless, you can take off the key without moving the string from either thumb.

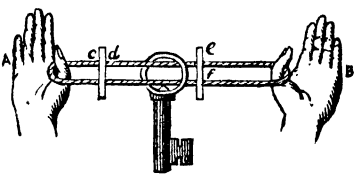


Fig. 129.

First lay the left forefinger against the double string, between the key and the thumb to the left, at the point *c*, fig. 130. Take hold of the upper string with the right-hand fingers, at the point *d*, between the key and the left forefinger, and draw the string towards you, so as to form a loop, as at *d*, in fig. 130.

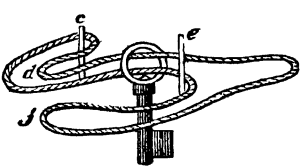


Fig. 130.

Pass this loop around the thumb to the left, with care not to twist it, nor to remove your forefinger from its position against the double string. If your forefinger were now to be removed, the string would at once slip from the hand of the person to the left, and the key would fall to the ground. Therefore, keeping the forefinger in its place, you extend the thumb, passing it behind the key, and laying it upon the double string in front, at the point *e*, fig. 130.

You now grasp the lower string of the loop with the

right-hand fingers the point *f*, between your thumb and that of the person on the right, and draw it towards you and make a loop; without twisting this loop, pass also over the other person's thumb. Upon removing your left-hand finger and thumb, and pulling the key, it will come away into your hand, although the ends of the doubled string are still firmly held.

MERCURY'S ROD;

Or, the Intertwined Cane.

Take a thick wire, or a short, smooth cane, and wind round it lengthwise four times a doubled cord tied at the ends (Fig. 132).

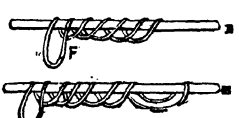


Fig. 131.

Some one, generally an accomplice, is selected to hold the cane by its two ends, and cautioned not to let the end E fall from the cane. But he secretly takes the upper end E off the stick and holds it pressed against it to conceal that he has disengaged it. Now say, "You see the string is fastened around the cane." You then pull the end F of the string, when it comes suddenly loose, and you exclaim, "There! I thought it was fast around the stick; and it was not so." After having several times wound the string about the stick in this way, and it every time appearing, on pulling it, that it is not fast, one of the party offers to do as much

himself. But this time, after winding the string again round the cane, you pass one end through the end of the

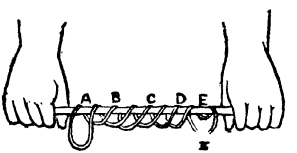


Fig. 132.

string E, as at K, fig. 132 and place it in the hands of your confederate. In pulling upon the string, this, having been passed over the stick, will remain fast hanging to it, and confuse your antagonist.

TO CHANGE PAPER SHAVINGS INTO RIBBON, STRING, OR TAPE.

You will require a couple of handfuls of bookbinder's shavings, which, tossed up lightly, will cover a table, or fill a waste-paper basket; and a dozen yards of quarter-inch ribbon, tape, or yard-lengths of string, various in colours, and sewn into one; this can be rolled up into a wheel or ball, taking up little room. With this in your hands, take up some of the shavings, and pretend to eat some of them, doing your gormandizing in a pantomimic manner—that is to say, with an eye to creating merriment. Each time you replenish your mouth, remove the masticated paper. At last, take a great gulp to make an end of it, and, by drawing the end of the ribbon coil from the mouth, prove the transformation. Keep the teeth nearly closed, and the ribbon can be pulled out foot by foot, without the whole roll being drawn forth.

TO THREAD A NEEDLE SEVERAL CONSECUTIVE TIMES.

Thread a needle with a yard of cotton, and draw it through till the ends are even. Lay the double thread over the forefinger tip three or four inches from the needle, holding it tight between the middle finger and thumb. Pass the needle through each thread at the point A, fairly between each strand of it. Now draw

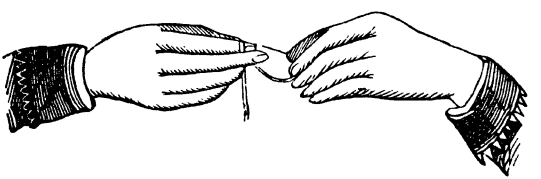


Fig. 133.

the needle and thread through the part of the thread just mentioned until it comes out straight, with no appearance of knot or catch in thread, although there is a loop where the needle passed between the strands, but, carefully smoothed down with the nails, it will not be noticed. Hold the needle up, the thread hanging down, saying, "Now I have threaded it once." Then, turning your back to the audience, pull the single thread that goes through the eye of the needle until it comes to the place where you have passed the needle through the strands. Now draw the loop through the eye, and you will have three threads in it; still continue to pull upon the three threads, and when you have pulled the loop part through the eye again, you will have five threads through, and so you can keep on until you have the eye of the needle as full as possible. With scissors, cut the threads off, about two inches from the needle, and it will appear as in fig. 134. Then show it to

audience, whom you will take care not to instruct in the secret.

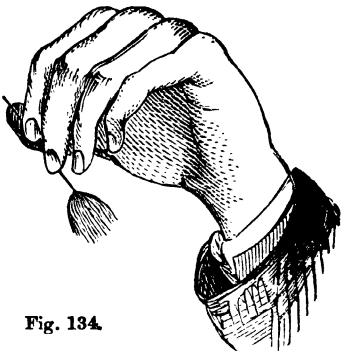


Fig. 134.

THE MAGIC THREAD AND NEEDLE.

This is peculiarly a lady's feat, but can be done just as well by one of the ruder sex. A needle is threaded in plain view, and the usual knot, or a still larger one, tied at one of the ends. The needle and thread, nevertheless, is drawn through a piece of cloth several times, as if the knot were non-existent.

Explanation.—Around the top of the right middle finger a needleful of thread, about eight or ten inches long, is wound once, and the thimble put on so as to hold and hide its upper end.

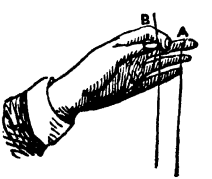


Fig. 135.

You must keep the thread out of sight while you thread the needle properly with a duplicate thread, drawing up one of its ends quite close, and concealing it between thumb and forefinger. The other end hangs down as far as that thread fastened under the thimble, and beside it, so that they two will seem to be both ends of the one thread.

Knot the piece under the thimble at the upper end, and sew, moving the hand quickly on getting the needle through, and it will seem as if the knotted thread was actually drawn through the stuff.

THREADING THE SAILOR'S NEEDLE.

Around your thumb wind a piece of thread or string in this manner. Let one end of it, A, drop between the thumb and the forefinger of your left hand; then wind the other part, held in the right hand, two or three times round your thumb; next, make a very little loop, B, with the same end, which hold between your finger and thumb, saying that, as you have no big-eyed needle, this loop must represent it. Now let go the end C, and take hold of the end A, which you must have left about six inches long, and a spectator will fancy you pass it through the loop, and take hold of it again when so passed through. But, in reality, you have passed the end of the string A quickly round the top of the thumb, so that it came between the thumb and the forefinger, thus getting into the loop, just the same result as if you had actually put it through the loop at once.

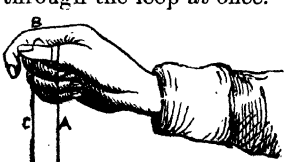


Fig. 136.

THE RINGS INVISIBLY SPLIT.

You have ready three bone *teething* rings, or such as are to be obtained at the saddler's, and four pieces of cotton-cord, matching the rings in colour. Two of these strings you double separately in the middle, where you tie them neatly together with fine but strong cotton. When about to perform, let the audience have the rings and duplicate cords to examine. Point out particularly that the rings are undivided, to all appearance, but remark that to magicians all things are open. In returning to your table, substitute the prepared cords by dropping the other pair accidentally behind your table with your left hand, while, in pretending to catch them, you take the other from the secret shelf.

Give the two ends of one cord to one person to hold, and the two ends of the other to another. They must not pull hard, or the thread will break. Let them approach each other, and each give you either end of his cord. Tie these two ends together, bringing the knot down to touch the rings. On returning to each person the end of the cord next to him, you hold the rings on your forefingers, the other fingers preventing separation of the cords by mistake. On bidding them pull hard, the threads will break, and the rings remain in your hands, though the strings are unbroken. The strings and rings can be examined.

THE SAME WITH BEADS OR BALLS.

This trick is one of the oldest known. Originating in the East, it has been popular in Europe under the titles of the "Paternoster Trick," or "My Grandmother's Beads," from irreverent jesters employing rosaries for the performance.

Having gone through the same preliminaries as before, run the double cords through three balls with holes, and have them held by two persons, each having two ends.

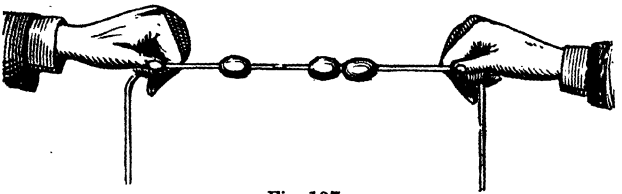


Fig. 137.

After the rest of the movements have been made as before, the breaking of the string will leave the balls in your hands. Chinese coins, with the square holes in the centre, bracelets, handcuffs, or any such articles, are adapted to this trick, as will be readily seen.

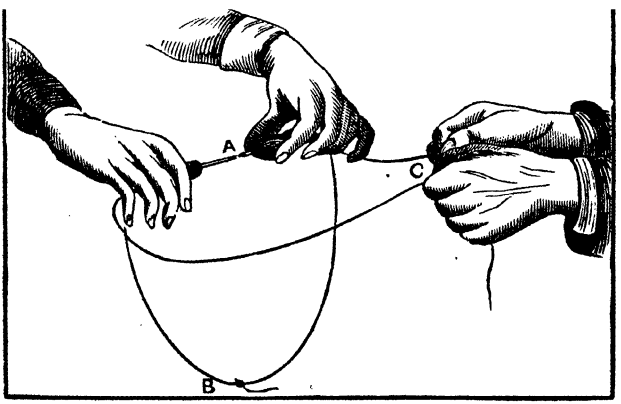


Fig. 138.

Let some of the audience have half a dozen beads, or perforated balls, to examine, and others

cut two pieces of thin string, not of the same length, which you will double into two loops, one of which is to be passed through the other.

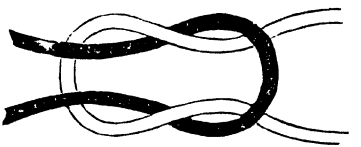


Fig. 139.

You can keep the point of joining hidden by many ways of holding the cords, of which we give one.

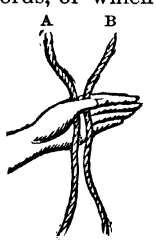


Fig. 140.

When the beads are returned, thread them all, with the centre bead covering the union.

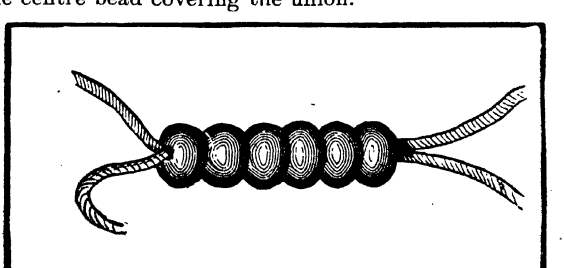


Fig. 141.

Tie the ends A and D together, and then the ends C and B together. Let these tied ends be tightly held by two persons in their two hands, but the strings to be left slack. Hold your left hand over the beads while you slide the centre bead off the union; so that you can draw out the two loops and run the beads off into your hands. Bid the holders give a strong pull, and the strings will separate, while you hold up the beads. If the string is flexible and elastic, it will retain but slight mark of the loops.

THE HOUR OF THE DAY OR NIGHT TOLD BY A SUSPENDED SHILLING.

Sling a shilling, or sixpence, at the end of a piece of thread by means of a loop. Then, resting your elbow on a table, hold the other end of the thread steadily betwixt your forefinger and thumb, observing to let it pass across the ball of the thumb, and thus suspend the shilling into an empty glass. When the shilling has recovered its equilibrium, it will for a moment be stationary: it will then of its own accord, and without the least agency from the person holding it, assume the action of a pendulum, vibrating from side to side of the glass, and, after a few seconds, will strike the hour nearest to the time of day; for instance, if the time be five minutes past six, it will strike six; if thirty-five minutes past six, it will strike seven; and so on of any other hour.

The thread should lie over the pulse of the thumb, which may in some measure account for the *vibration* of the shilling.

THE MYSTERIOUS PENDULUM.

A Ring and Thread Trick.

To one end of a silk thread, a foot long, fasten a heavy, plain gold ring, and with the other attached to your forefinger, the hand and arm being in the position to "make a swan" in shadow figures: let the ring hang down half an inch from the table, on which your elbow rests. The nervous movement felt whenever you hold a limb in enforced steadiness will make the ring swing tremulously for a time. When quiet, put three or four shilling pieces under it, when it will begin to swing in and out from you. Put your thumb under the silk, at the same time lowering the hand to keep the ring at its same position; it will swing from right to left.

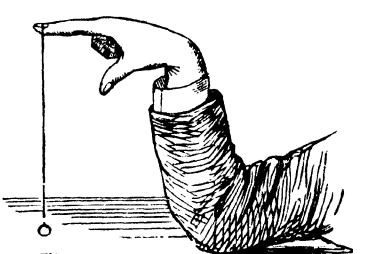


Fig. 142.

TO MAGNETIZE A WALKING-STICK.

To each end of a piece of black silk, or horsehair, two feet long, fasten a bent black pin like a hook secretly in the back part of your trouser-legs, a couple of inches below the knees. Then place a light dark-coloured walking-stick within the inner part of the thread, as shown in the illustration, and, by moving the

legs, the cane will dance about and caper fantastically. At night the thread is invisible, and the cane will seem not to have any support whatever. The performer states, before commencing this trick, that he intends to *magnetize* the cane, and, by moving his hands as professors of magnetism do, and keeping time with his feet while he whistles, detection is next to impossible.



Fig. 143.

THE MAGICAL KNOT.

You propose to tie a knot with two ends of a handkerchief, which knot you will undo by simply pulling the ends. Take one end of the handkerchief in each hand, the ends inside. Tie a single knot, and your hands will be in the position seen in the illustration.

But instead of pulling the ends C and D, you take hold of the part B between forefinger and thumb, dropping the end D, and pulling the end C, and the bight,

or bend, B, which loosens and not tightens the knot. All these movements to be executed as one, and quickly.

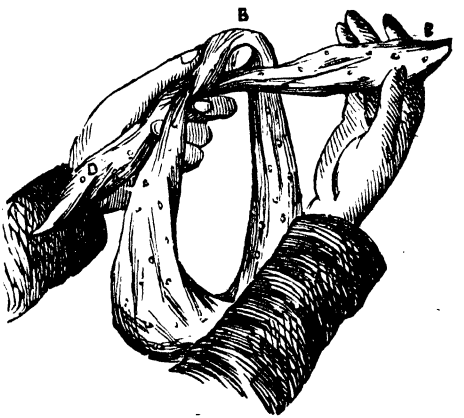


Fig. 144.

TO MEND A CUT HANDKERCHIEF.

Have concealed in your left hand a piece of cambric matching that of the borrowed handkerchief, and in pretending to wholly roll up a bit of stick in the handkerchief, wrap one end in the cambric. The folds will conceal the place where the handkerchief laps the cambric, or your hand holding the stick will suffice. You have now only to run your knife round the stick and show the piece of cambric which you detach. Afterwards, juggle away the pieces, and return the handkerchief uninjured.



PUZZLES WITH STRING.

THE STRING AND BUTTON TRICK.

Down the middle of a long piece of leather make two parallel cuts with a knife, and below them a hole. Run a piece of string under the slit and both ends through the hole, to which you tie two buttons, or beads, bigger than the hole. Now, to get the string out without removing the buttons, you must draw the slip of leather through the holes, and the rest is easy.

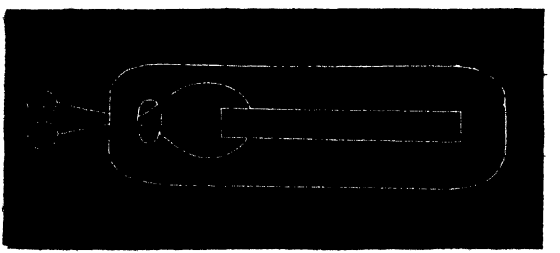


Fig. 145.

Instead of buttons, cherries on their stalks can be used, to make the apparatus seem to be more of an impromptu recreation.

THE PUZZLE OF CUPID.

Cut a piece of thin wood about four inches long and three-quarters broad. Bore three holes. Cut pieces of bone, cork, or wood, into the shape of two hearts, and then arrange the whole upon strings, as in the diagram. The puzzle is, to get the two hearts upon the same loop.

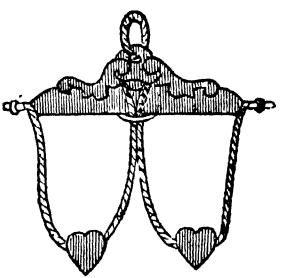


Fig. 146.

Answer.—First draw the heart A along the string through the loop B, until it reaches the back of the centre hole; then pull the loop through the hole, and pass the heart through the *two* loops that will then be formed; then draw the string back through the hole as before, and the heart may easily be passed to its companion.

Rings, beads, buttons, or any such articles can be used in place of the carved hearts.

Variation.—With Beads or Balls.—Get the cover of a

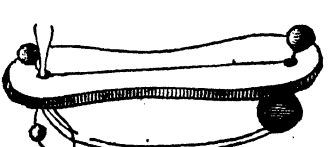


Fig. 147.

small cigar-box, or similar thin board, five inches long, and cut it out the shape represented in figs. 147 and 148.

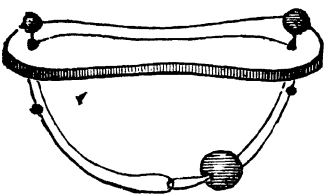


Fig. 148.

Then arrange strings (leather bootlaces are excellent) and balls, as shown in the same engravings.

The puzzle is to take off the large ball without untying the strings, or removing the little beads. Push the ball close up to the wood, and pull the loop down through as far as it will go; then pass the end of the loop through the hole, and over the bead, as here shown. The two loops will then separate, and the ball comes off. The knots at the ends of the string are to prevent the loops being pulled through by the beads.

THE HEART PUZZLE.

Cut a piece of thin board in the shape of a heart, about three inches by two, and bore holes in it.

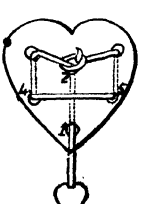


Fig. 149.

Take eighteen inches of string and draw it, with a small heart at the end of it, through No. 1 hole, behind, out at 2, over in front to 3, under to 4, over to 5, and 6, the top holes, where a loop is made to hold it to the string from 2 to 3; all without twisting the string. The puzzle is to remove the string from the large heart, without undoing the loop. To do so, loosen the string and draw the loop through the hole No. 2; pass it behind and through 1, when you can slip it over the small heart, and draw it out.

THE SCALE AND RING PUZZLE.

Provide a thin piece of wood of about two inches square; make a round hole at each corner, sufficiently large to admit three or four times the thickness of the cord you will afterwards use, and in the middle of the board make four smaller round holes, in the angles of a square, and about half an inch between each. Then take four pieces of thin silken cord, each about six inches long; pass one through each of the four corner holes, tying a knot underneath at the end, or affixing a little ball, or bead, to prevent its drawing through; take another cord, which, when doubled, will be about seven inches long, and pass the two ends through the middle holes *a a*, from the front to the back of the board (one cord through each hole), and again from back to front, through the other holes *b b*; tie the six ends together in a knot, so as to form a small scale, and proportioning the length of the cords, so that when you hold the scale suspended, the middle cord, besides passing through the four centre holes, will admit of being drawn up into a loop of about half an inch from the

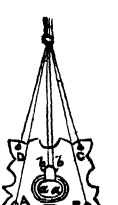


Fig. 150.

surface of the scale: provide a ring of metal, or bone, of about three-quarters of an inch in diameter, and place it on the scale, bringing the loop through its middle; then, drawing the loop a little through the scale toward you, pass it, double as it is, through the hole at the corner A, over the knot underneath, and draw it back; then pass it in the same way through the hole at corner B, over the knot, and draw it back; then, drawing up the loop a little more, pass it over the knot at top, and afterward through the holes C and D in succession, like the others, and the ring will be fixed.

To release the ring, reverse the former process, by passing the loop through the holes D C B and A, as described.

THE BOARD AND RINGS.

Furnish each end of two small boards, about four inches in length and one inch wide, made of some hard polished wood, with small brass rings, as represented in fig. 151. (The rings with screws used by picture-frame

Fig. 151.

makers are best.) Now have a piece of string (not liable to twist) with the ends tied together, and commence by passing one end of the double string through the ring *f* from above downwards; then pass the lower loop over the entire board, and draw it tight by pulling the opposite end of the string. Thus you form the first hitch, which will be at one end (say *h*) of fig. 152. The puzzle is to form a similar hitch on the farthermost ring of the second board (after passing the double string

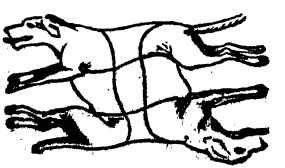
through the ring *e* from above downwards, and through the ring *d* from below upwards, then through the ring

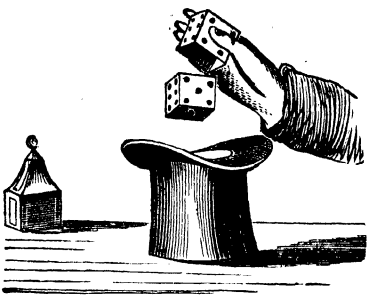


Fig. 152. Fig. 153.

c from above downwards). You pass the loop *h* over the ring *c* and board B, through the ring *d*, and over the board A; then draw the loop so formed tight, by pulling the boards A and B in opposite directions. This curiously interlaced mass, as represented by fig. 153, few will be able to disengage.

In order to do so, pass the loop *c* along the board A, through the ring *d*. Pass the board through the loop *c*, and draw your boards in opposite directions again, and you will find you have freed one end, and the board A is at liberty. The board B can easily be loosened, by simply drawing the loop over it and pulling the double string out.





DIVERSIONS FOR INTERLUDES.

KEY, HEART, AND DART.

THIS favourite old cardboard trick is of easy accomplishment. You have but to cut out of cardboard, tough and elastic if possible, a double-headed dart, a key, and a heart in which are made four angular slits.

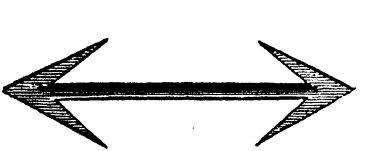


Fig. 154.



Fig. 155.



Fig. 156.

To arrange the three in an apparently inextricable manner, and which will, indeed, baffle many attempts to separate them, you press out the lowermost cut in the heart, so that it forms a loop, which you draw through the ring (made small) of the key, so that you can pass one end of the arrow through it, without breaking the pasteboard. Then fold the arrow together in the middle, so that one point shall fit accurately upon the other,

bring the loop back into its former position, drawing it out of the ring of the key, which then glides down the arrow, and hangs, held fast by its barb, when the three objects will be joined together as seen in fig. 157.

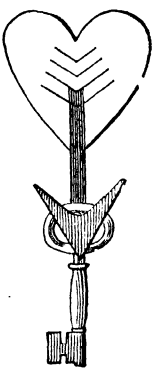


Fig. 157.

The pasteboard must not be bent by the person who tries to undo the entanglement.

THE TIRING-IRONS, BAGUENAUDIER, OR CARDAN'S RINGS.

Description.—In a flat board, of wood, bone, or metal, are ten holes; in each hole a wire is loosely fixed, beaten out into a head at one end, to prevent it slipping through, and the other fastened to a ring, also loose. Each wire has been passed through the ring of the next wire, previously to its own ring being fastened on; and through the whole of the rings runs a wire loop or bow, which also contains, within its oblong space, all the wires to which the rings are fastened; the whole presenting so

complicated an appearance as to make the releasing the rings from the bow appear an impossibility.

To Take off the Rings.—We have given a picture of the "ten-ring puzzle," but it can be made with seven, nine, or eleven rings, at pleasure.



Fig. 158.

Take the loop in your left hand, holding it at the end B, and consider the rings as being numbered 1 to 10. The 1st will be the extreme ring to the right, and the 10th the nearest your left hand.

Draw ring the 1st off the bow, and drop it down through the bow, so as to be between the board and the bow. Do the same with the 3rd *; replace the 1st, by passing it up through the bow; bring it to the end of the bow, always bearing in mind that the wire supporting the rings should be perpendicular between the two sides; bring down 1 and 2 together; then 5 **; take up 1 and 2 together; bring down 1, take up 3 and 1; bring down 1 and 2 together; bring down 4; take up 1 and 2; bring down 1 and 3; take up 1; bring down 1 and 2 together, and bring down 7. This would finish the seven-ring puzzle. For the game with more rings, begin as stated, and proceed to the point **, and keep on till the 6th ring is down. Return to the point marked with *, and go on until the 5th ring is down. *Note.*—If there is an even number on the bow, the first and second ones must be brought down together; if odd, only bring down the first one.

Reversal.—Put on 1 and 2, bring down 1, take up 3,

and then 1: bring down 1, and so on, always taking up the first or outward rings.

FOR SEVEN RINGS.

TABLE.—*To Take off the Rings.*

Take off . 1	Take off . 7	Put on . 1	Take off . 1
,, . 3	Put on 1 & 2	Take off 1 & 2	,, . 3
Put on . 1	Take off . 1	,, . 4	Put on . 1
Take off 1 & 2	Put on . 3	Put on 1 & 2	Take off 1 & 2
,, . 5	,, . 1	Take off . 1	,, . 5
Put on 1 & 2	Take off 1 & 2	,, . 3	Put on 1 & 2
Take off . 1	Put on . 4	Put on . 1	Take off . 1
Put on . 3	,, 1 & 2	Take off 1 & 2	Put on . 3
,, . 1	Take off . 1	,, . 6	,, . 1
Take off 1 & 2	,, . 3	Put on 1 & 2	Take off 1 & 2
,, . 4	Put on . 1	Take off . 1	,, . 4
Put on 1 & 2	Take off 1 & 2	Put on . 3	Put on 1 & 2
Take off . 1	Put on . 5	,, . 1	Take off . 1
,, . 3	,, 1 & 2	Take off 1 & 2	,, . 3
Put on . 1	Take off . 1	Put on . 4	Put on . 1
Take off 1 & 2	Put on . 3	,, 1 & 2	Take off 1 & 2

TABLE.—*To Put on the Rings.*

Put on 1 & 2	Take off 1 & 2	Take off . 3	Put on 1 & 2
Take off . 1	,, . 1	Put on . 1	Take off . 1
Put on . 3	Put on 1 & 2	Take off 1 & 2	Put on . 3
,, . 1	Take off . 1	,, . 5	,, . 1
Take off 1 & 2	,, . 3	Put on 1 & 2	Take off 1 & 2
Put on . 4	Put on . 1	Take off . 1	Put on . 4
,, 1 & 2	Take off 1 & 2	Put on . 3	,, 1 & 2
Take off . 3	Put on . 6	,, . 1	Take off . 1
,, . 1	,, 1 & 2	Take off 1 & 2	,, . 3
Put on . 3	Take off . 1	,, . 4	Put on . 1
Take off 1 & 2	Put on . 3	Put on 1 & 2	Take off 1 & 2
Put on . 5	,, . 1	Take off . 1	Put on . 5
,, 1 & 2	Take off 1 & 2	,, . 3	,, 1 & 2
Take off . 1	Put on . 4	Put on . 1	Take off . 1
Put on . 3	,, 1 & 2	Take off 1 & 2	Put on . 3
,, . 1	Take off . 1	Put on . 7	,, . 1

When there are more rings, bear in mind the supposed number of the ring which you wish to remove or put on, so as not to be confused.

LATIN MADE EASY.

Consultation of Four Physicians.

First Doctor. Is his honor sic? Præ lætus felis pulse. It do es beat veris loto de.

Second Doctor. No notis as qui casi e ver fel tu metri it. Inde edit is as fastas an alarum, ora fire bellat nite.

Third Doctor. It is veri hei!

Fourth Doctor. Noto contra dictu in my juge mentitis veri loto de. It is as orto maladi, sum callet. [Here thisod octo reti resto a par lori na mel an coli post ure.]

First. It is a me gri mas I opi ne.

Second. No docto rite quit fora quin si. Heris a plane si tomo fit. Sorites Para celsus: Præ re adit.

First. Nono, Doctor, I ne ver quo te aqua casu do.

Second. Sum arso: Mi autoris no ne.

Third. No quare lingat præ senti de si re his honor is sic offa colli casure as I sit here.

Fourth. It is æther an atro phi ora colli casu sed: Ire membri re ad it in Doctor bro dies esse, here it is.

Third. I ne ver re ad apage in it, no re ver in tendit.

Second. Professo rhare is offa qui te di ferent noti o nas i here.

First. It is ad ange rus casis ani.

Fourth. I must tellure alitis ago uti humor. Hi sto macto is empti.

First. It me bea pluri si.

Second. Ure par donat præsenti des ire; His dis eas is a cata ride clare it.

Third. Atlas tume findit ap ane in histo es.

Fourth. Præ hos his a poti cari; cantu tellus? Ab lis ter me bene cessa risum de cens. Itis as ure medi in manicas es.

Third. I findit isto late tot hinc offa reme di; fori here his honor is de ad.

Second. His ti meis cum.

First. Is it trudo ut hinc?

Fourth. It is veri certa in. His Paris his belli sto ringo ut foris de partu re.

Third. Næ, i fis Ecce lens is de ad lætus en dum apri esto præ foris sole. His honor has bina Cato liquor a de isti here.

First. Alor dis sum times as tingi as an usu reris.

Second. Acrou nis alligo time a verbi mi at endans for a forte nite.

Third. O mei ne vera tendo na nil ordinis sic nes ani more.

Fourth. Acrou nis miti smal in a nil ordo fis qua liti; sum pes fore times more. It isto mocat a Doctor.

Second. Lætus paco fitis time.

First. A itis hi time in de editis, forus alto fallas campe ringo fas fastas arato ut offa da iri; fori fera bea tinge veri minute, ido. His lac quis an das turdis aussi sto ut valet is re di forus.

Second. Ali feris ab ast in a do; fori here ano is at adis stans.

TO BREAK A STONE WITH A BLOW OF THE FIST.

Find two stones, from three to six inches long, and about half as thick; lay one flat upon the ground, immovably, on which place one end of the other; raising the reverse end to an angle of 45 degrees, and just over the centre of the other stone, with which it must form a T, being upheld in that position by a piece of thin twig or stick, an inch or an inch and a half long; if the elevated stone be now smartly struck about the centre with the little finger side of the hand, the

stick will give way, and the stone will be broken to pieces.

WALKING LIKE A FLY, HEAD DOWNWARDS.

Acrobats astonish the uninitiated by walking on polished marble slabs, head downwards in theatres and circuses. It is indeed frightful to see an Antipodean perched up in mid-air, with his head to the ground—but a long way above it—and his feet to the roof.

The feat is performed, in the first place, by using air pumps, and working them step by step, to extract all the air under appendages on his feet, so that the outward pressure on one foot will exceed his whole weight. If he is 150 lb. weight, it requires ten square inches of atmospheric pressure to balance that; for the atmospheric pressure is 15 lb. on every square inch of the earth's surface; therefore, $10 \times 15 = 150$ lb. This pressure must be on one foot, while the other is being moved forward. The courage required to perform the feat is not small, and the labour is very severe and tedious. It is needless to say that, although the polished marble slab is the greatest wonder to some, he could not perform the feat on rough porous boards.

Again, by having loops of rope depending from the ceiling, an athlete has been known to walk some distance, held up by one foot in one loop while he advances the other foot.

TO IMITATE MANDRAKES.

There are many roots of plants which assume curious shapes, and even a close resemblance to the human form. The briarwood is particularly capable of being improved upon, and, when fresh and living, comical

shapes, like dwarfs, can be made of it. Hollow out the head, and put in a grain or two of barley or millet; bury the figure in earth for a fortnight or so, when the seed sprouts, and the filaments protruding can be cut off, so that the little image seems to have a head of hair; side whiskers and beard can also thus be added.

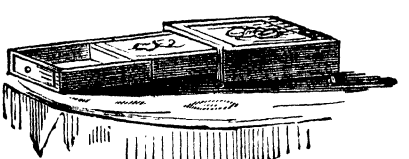
TO TAKE A MAN'S VEST OFF WITHOUT REMOVING HIS COAT.

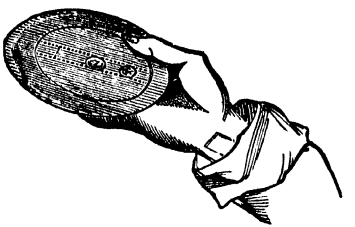
This seemingly ridiculous and unreasonable trick is to be performed without cutting, tearing, or in any way damaging the vest, or without removing either arm from the sleeves of the coat.

Explanation.—The party performing this trick must be careful to select a person whose coat-sleeves are large enough at the wrist to admit the hand; if the person has on a spring overcoat, let him remove the undercoat and replace the overcoat, and the trick can be easily performed, as overcoats are generally loose.

You proceed by unbuttoning the vest in front; then unbuckle the strap behind: you then place your hands underneath the coat behind, taking hold of the bottom of the vest, at the same time requesting him to extend his arms at full length over his head; then raise the bottom of his vest over his head (if the vest is tight it may require a little forcing); the vest will now be in front, across the chest. Take the right bottom end of the vest and put it into the arm-hole of the coat at the shoulder, putting your hand up the sleeve at the same time and seize the end and draw it down the sleeve, which will release that arm-hole of the vest; you then pull the vest back again out of the sleeve of the coat and put the same end of the vest in the left arm-hole of

the coat, putting your hand up the sleeve of the coat in the same manner and seizing the end as before, when you may then draw the whole vest through his sleeve, thus performing the trick.





TRICKS WITH COINS.

TO MAKE COIN VANISH.

DRILL a hole in a coin, and fasten to it a couple of feet of round elastic cord, the other end of which you sew inside your coat-sleeve at such a distance from the cuff that, when the cord is not stretched, the coin will hang just out of sight. Taking a borrowed coin of the same size as the concealed one, you pretend to wrap it up in a handkerchief, but really wrap up the hidden one. Let some one hold the handkerchief tight just between your finger-ends and the wrapped-up coin. Make a few flourishes, and, bidding the person let go the handkerchief, you whisk it into the air.

The coin is drawn up your sleeve, and, of course, nothing falls out of the handkerchief, which can be freely examined. Afterwards produce the borrowed coin from where you please.

Variation.—Taking a coin between the forefinger and

thumb, you can give it a spinning motion up your arm, so that it will fall within your sleeve.

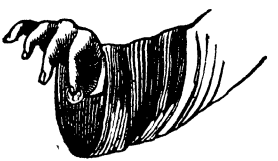


Fig. 159.

Another Way.—Having a little white wax on the middle finger-nail, lay a shilling on the palm of that hand, and say that you can dismiss it into nonentity at a wave of your wand. Then close your hand, and the waxed nail has but to touch the coin to carry it with it on opening the fist. Say, "Whip, snap, go!" and, opening out your hand, the coin will have disappeared. Leave no trace of wax on the coin, in case of its being asked for for examination.

A COIN MELTING BY THE HEAT OF ONE'S HAND.

Make an amalgam of quicksilver and filings of pewter or lead, which will melt in one's hand. Ask for a coin, say a shilling, and, pretending to put it in the hand where you already hold this composition, squeeze your hand so that the mercury trickles between the fingers out in drops upon the floor.

Or you may load a pistol with this metallic paste, fire it off, and pretend to find the original coin in the target you aimed at.

TO TELL A MARKED SHILLING AMONG THREE.

Having held two shilling pieces in your closed hand for a minute or two, you ask a marked one to be put in the hand with them, while you turn your head away; the three shuffled together, and your hand then closed, you undertake to inform the company which is the marked one, and do so by the feel, as the marked one is sure to be colder than the two which had been warmed in your hand.

TO DISCOVER A MARKED COIN.

Mark a coin, say with a star or cross, and hide it. Soon afterwards borrow a coin of the same date and cost, and say that, to prevent any suspicion rising of your substituting another coin, you will mark it. Do so with the same token as you scratched on the first. Juggle away coin number two, and, by any means, indicate where the other is. Whoever goes for it will share in the general surprise when they see what appears to be the identical one.

THE COIN AND KNIFE TRICK.

You undertake to place a coin exactly under where a penknife, stuck in the ceiling, might fall. It is as easily managed if the ceiling were a hundred feet from the floor as if only ten. Hide in your hand a sponge with some water, and, when the knife is stuck in the ceiling, secretly lodge a drop of water on the end of the handle, and watch where it falls on the floor, and immediately place your coin over it. Give the ceiling a tap with your fist, and the end of the knife will drop exactly on the coin, following the direction of the water.

TO SEND A COIN FROM ONE HAND TO THE OTHER.

Hold your hands open a little distance apart on the table, the left palm level with the fingers of the right. Place a halfpenny, a shilling, or some such coin, in each



Fig. 160

hand, that in the right being on the fourth and little finger. Now, if you suddenly turn the hands over, the right-hand coin will fly unseen into the left palm. Unless the spectator should have a side-view, the passage could never be detected.

TO SEND A SHILLING THROUGH A TABLE.

Take five or six inches of silk, to one end of which you attach a bent pin, and to the other a medal or coin about the size of a shilling.

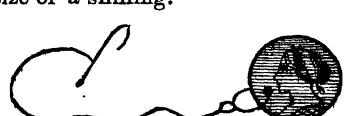


Fig. 161.

Let a shilling be marked by one of the company, which you take and pretend to wrap up in a handker-

chief, in which you have already hooked the bent pin. Take it in the left hand, pinching the coin between the forefinger and thumb, so that its shape is seen through the wrapper, and hold it six inches above the table. The real shilling is held between the ball of the thumb and the root of the forefinger of the right hand, with which you take up a cup, saucer, or glass, and put it under the table. Let fall the counter while still holding the handkerchief, and it will rattle on the table. Instantly drop the real coin into the cup, where it will jingle. These two sounds, seeming to be made by the one object passing through the board, will perplex the

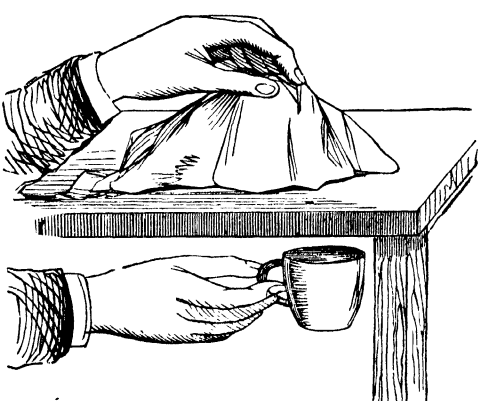


Fig. 162.

most incredulous, particularly when you shake the handkerchief in your left hand at the same time that your right places the cup with the coin before all eyes.

Variation.—Instead of the counter already there, really put a coin in the handkerchief, and with a fine needle and thread, while your hands are under the han[illegible]

kerchief, secure that coin with a few stitches. When the handkerchief is shaken by the party, nothing will fall, and you confidently assert that the coin has flown away. Bring back the marked one which you have concealed, in any striking way which the instructions of this book or your own wit will suggest.

TO SEND A COIN INTO A BOTTLE WITHOUT TOUCHING THEM.

Cut a card the size of an old penny piece, and lay it on the mouth of a bottle large enough to let a sixpence slip easily into it. Lay a sixpence on the card exactly over the orifice. Strike the card smartly by springing out your forefinger caught by your thumb; and when the card is spun away, the sixpence, of which the inertia has not been disturbed in any direction by the action, must fall straight down into the bottle—or remain unsustained in the air, which would be still more marvellous, if possible.

TO TELL COUNTERFEIT MONEY BY WATER.

If it be a piece of silver that is not very thick, as a half-crown or crown, take another piece of good silver of equal balance with it, and tie both pieces with thread or horsehair to the scales of an exact balance, and dip the two pieces thus tied in water; for then, if of equal purity, they will hang in equilibrio in the water as well as in the air. If one piece is lighter in the water than the other, there is some other metal mixed with it of less specific gravity than silver, such as copper. If heavier than the other, it is bad from having been alloyed with heavier metal, as lead.

THE TWIN COINS.

Stick a shilling under a table by some white wax. Borrow a shilling from among the audience, and rub it flat upon the table, with your open hand on it. Suddenly pick off the adhering coin with your left forefinger nail, and, at the same time, shove the other coin down off the table. Scrub them together to remove the traces of wax, and toss them upon the table.

THE DOUBLED COINS.

Take two sixpences, evenly stuck together, and put them into a person's hand, as if there was but one; then, acting as if you put a sixpence into your left hand, use some strange words, to make it appear that you convey the sixpence from your own hand into the stranger's. Open your left hand, and nothing will be seen; then open the stranger's hand, and rub the sixpences apart (while so doing) with your thumb. He will be surprised to find two sixpences where he thought there was but one.

THE OBEDIENT SIXPENCE.

Between two shillings put a sixpence on the table-cloth, and on the latter set a tumbler. You offer to remove the smaller coin without displacing either the glass or its two supporting coins. Say solemnly, "Ninny, ninny, now come!" and simply scratch the table-cloth with the forefinger-nail in the direction you would have the coin to move.

GOLD, SILVER, AND COPPER.

A half-sovereign, a shilling, and a halfpenny being put on the table, you propose to tell which has

touched during your turning round, or absence from the room. Your confederate (as previously agreed) touches his eye for the coin nearest the centre of the table, his nose for the second, and his chin for the third. Or other signals are arranged.

A NUMISMATIC DILEMMA.

Put the three coins used in "Gold, Silver, and Copper" in a row; assure the company that you can take up the middle one without touching it. If you remove one of the flanking pieces to the side of the other—that is to say, number one to beside number three—the middle one becomes an end one, and can be safely taken up.

TO SEND MONEY FROM ONE HAND TO THE OTHER.

On your right palm lay a shilling, and on the top of it place the top of your left middle finger, which press hard upon it, at the same time using strange words. Then suddenly draw your right hand away from the left, seeming to have left the coin there, and shut your hand closely, as if it still were there. This may really appear to have been done; take a knife, and seem to knock against it, so as to make a great sound. This is a pretty trick, and, if well managed, both the eye and ear are deceived at the same time.

A COIN CHANGED INTO A COUNTER.

Secretly keeping a counter in the palm of the left as before, seem to put some sixpences therein,

which, being retained still in the right hand, when the left hand is opened, the sixpence will seem to be turned into a counter.

TRANSMUTATION OF COIN.

Have a shilling secretly by you, and borrow another and a half-sovereign, laying them plainly on the right on your table. Borrow two handkerchiefs, and in one roll up the concealed shilling, but pretending to wrap up the gold coin. Let one of the party hold this handkerchief. In the other, wrap up the half-sovereign, but pretend it is the shilling, and let another person hold this. Touch the handkerchief with your wand, and say, "Presto, Pacillo, Pass!" On opening the handkerchiefs, the gold coin will seem to have substituted itself for the silver, and *vice versâ*.

THE FLYAWAY PAPERS.

This knife trick is to be accomplished principally by practice. Have a paper-knife, with both sides exactly alike. Stick three small pieces of paper on one side of the blade, as in fig. 163.

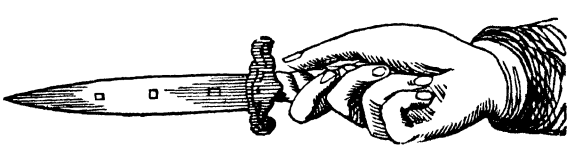


Fig. 163.

Let the spectators see that the paper is really on the blade. If you turn the blade swiftly, you can execute two revolutions of it, so as to bring the same face

uppermost, though you seem to be showing that papers are on both sides. In their presence take off one or two of the papers, showing them the naked side of the knife, as if you had rubbed *all* the paper off. Now repeat the former method, viz., quickly turn the knife-blade twice ir your hand, by so doing always showing the same side. thus showing that the blade is bare: blow upon it, and turn the knife over once, and show the side on which is one or two papers.

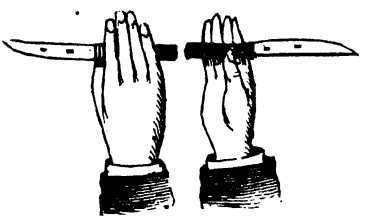
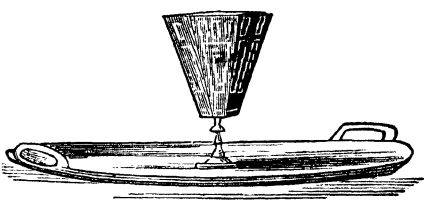


Fig. 164.

The breath alone will have seemed to make it come. The turning is executed by the mere movement of the wrist and forefinger, as shown in the double illustration (fig. 164), which must be thoroughly practised.





THE BEAUTIES OF CRYSTALLIZATION.

If crystals be formed on wire, they will be liable to break off, from the expansion and contraction of the wire by changes of temperature.

CRYSTALS SEEN TO FORM.

On a perfectly clean slide of glass put a film of a solution of sal ammoniac (chloride of ammonium), and, putting it in a microscope, with an electric light, the tree-like branching forth of the substance will be seen on the white disc projected on the wall or screen.

ALUM CRYSTALS.

1.—Dissolve alum in hot water; place in it a smooth glass rod and a stick of the same size; next day, the stick will be found covered with crystals; but the glass

rod will be free from them: in this case, the crystals cling to the rough surface of the stick, but have no hold upon the smooth surface of the glass rod. But if the rod be roughened with a file, and then placed in the alum water, the eight-sided crystals will adhere to the rough surfaces, and leave the smooth ones bright and clear.

2.—Bore a hole through a piece of coke, and suspend it by a string from a stick placed across a hot solution of alum; it will float; but, as it becomes loaded with crystals, it will sink in the solution, according to the length of the string. Gas-coke has mostly a smooth, shining, and almost metallic surface, which the crystals will avoid, while they will cling only to the most irregular and porous parts.

For yellow, add powdered turmeric to the hot solution; litmus, for bright red; logwood, for purple; and writing ink, black. The more muddy the solution, the finer will be the crystals.

To keep coloured alum crystals from breaking, or losing their colour, place them under a glass shade, with a saucer of water; this will preserve the atmosphere moist, and prevent the crystals getting too dry.

To make Alum Baskets.—Dissolve in hot water as much alum as it will take up—one pound to a quart: filter it through blotting paper into a pipkin, or porcelain vessel. The tints desired must be added before the filtering. For crimson, madder, litmus, and cochineal; for yellow, turmeric or saffron; for black, China ink thickened with gum arabic; for blues, indigo dissolved in sulphuric acid; logwood, for purple; for sky-blue, blue vitriol; for green, a few drops of muriate of iron. When the solution is filtered, boil it gently until half has evaporated. Pour into a vessel, in which you plunge a basket of ordinary wicker-work, reeds, rushes,

split wood, or wire; if of wire, make the surface rough by winding rough woollen cord round it.

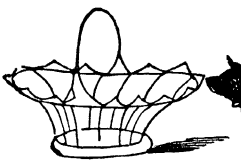


Fig. 165.



Fig. 166.

CRYSTALS OF SALT AND NITRE.

Make distinct solutions of common salt and nitre; set them in two saucers in any warm place, and let part of the water dry away, or evaporate; then remove them to a warm room. The particles of the salts in each saucer will begin to attract each other, and form crystals, but not all of the same figure: the common salt will yield crystals with six square and equal faces or sides; the nitre, six-sided crystals; and if these crystals be dissolved over and over again, they will always appear in the same forms.

CRYSTALS OF LIME.

Hold in a wineglass of hard water a crystal of oxalic acid, and white threads—*i.e.*, oxalate of lime—will instantly descend through the liquid suspended from the crystal.

CRYSTALS OF VITRIOL.

Tie some threads of lamp-cotton irregularly around a copper wire, or glass rod; place it in a hot, strong

solution of blue vitriol, and the threads will be covered with beautiful blue crystals, while the glass rod will be bare.

CRYSTALS OF SULPHATE OF SODA.

A strong saline solution excluded from the *air* will frequently crystallize the instant that air is admitted. For this purpose, make a solution of Glauber's salts (sulphate of soda) in boiling water (3 lb. of the salt to 2 lb. of water); bottle and cork quickly; also tie over the neck a piece of wet bladder. When perfectly cold, or even a few days afterwards, remove the cork, and the salt will immediately crystallize, shooting out the most beautiful crystals, at last becoming nearly solid: at the same time the whole becomes warm, in consequence of the latent heat generated by the change of the liquid to the solid state. If the liquid will not crystallize quickly on removing the cork, tie a crystal of Glauber's salts to a bit of wire; touch the surface of the fluid, when the whole will begin crystallizing.

Variation.—In half an ounce of water dissolve the same quantity of common soda. Into this pour sulphuric acid (oil of vitriol) half an ounce; crystals of sulphate of soda will be found in the cold liquor.

CRYSTALS OF TIN.

Mix half an ounce of nitric acid, six drachms of muriatic acid, and two ounces of water; pour the mixture upon a hot tin plate, and, after washing it in the mixture, it will bear a beautiful crystalline surface, in feathery forms. This is the celebrated *moirée métallique*, and, when varnished, is made into ornamental boxes, &c.

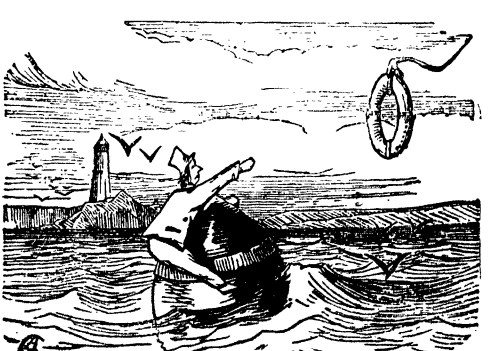
The figures will vary according to the degree of heat previously given to the metal.

A GROUP OF COLOURED CRYSTALS.

Take half an ounce each of alumine (alum), sulphates of copper (blue vitriol), of iron (green vitriol), magnesia (Epsom salts), potash, soda, and zinc (white vitriol); separately dissolve them, and pour all the solutions into a large vessel. When the water evaporates, the crystals will shoot up, and the intermixture of colours will present a beautiful sight.

CRYSTALS OF BISMUTH.

Melt a pound of bismuth in an iron ladle; skim off the dross; take it off the fire whilst fluid, and let it cool somewhat. Break a hole in the crust, and pour out what remains liquid within, and there will be left a mass of beautiful crystals.





CHEMICAL VEGETATION.

1.—THE TREE OF DIANA.

POUR on a glass plate or a tile, set horizontally, a solution of nitrate of silver in double its weight of water. Next surround with this liquid a sprig imitated in copper or zinc wire, and leave it to be covered with the silvery crystallization, which will cover it in a few hours. (We have given another method of making this Tree of Diana in "The Secret Out.")

TREE OF SATURN.

Put some sugar of lead in water in a bottle, and having fastened one end of a spiral wire to the inside of the cork, and the other to a piece of zinc, insert the latter within the bottle, and stopper it up tightly. The zinc being a little below the surface of the water, the precipitation of the acetate will collect on the wire. The older it is, the brighter it looks.

3.—THE TREE OF JUPITER.

In a fish-globe, or any glass vessel of similar shape, put some rain or distilled water, and three drachms of muriate of pewter and about ten drops of nitric acid. When the salt is dissolved, hang a zinc wire down into the globe, and let the composition settle on it without touching it. It shines more than the lead tree, or Tree of Saturn.

4.—THE TREE OF MARS.

Dissolve iron-filings in strong spirits of nitre till the latter will take up no more of the metal. On the above pour, drop by drop, some oil of tartar. There will arise a strong effervescence, after which the iron, instead of sinking, will rise inside the vessel, line it, and shoot out a quantity of feathery branches, sometimes outside the vessel, with all the appearance of a plant.



Fig. 167.

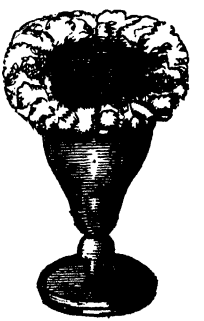


Fig. 168.

TREE OF TIN.

Into such a vessel as was used for the lead tree, put distilled or rain water, three drachms of muriate of tin,

and ten drops of nitric acid. When dissolved, i
zinc wire. In a few hours the tree will have fo
Like the pewter tree, it is brighter than the lead one.

6.—THE PHILOSOPHER'S MUSHROOMS.

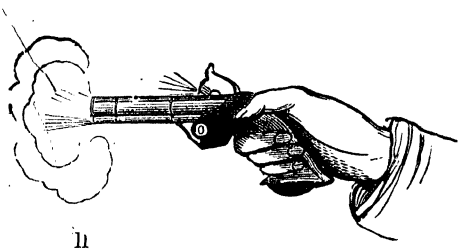
Take a glass with a foot, rather large, and with its bottom ending in a point. Put in one ounce of rarefied spirits of nitre, and add one ounce of essential oil of guaiacum. These are both cold liquors, and yet their union produces a violent fermentation, accompanied by emissions of smoke, in the midst of which a spongy mass, resembling a fungus, is seen to grow. It is the oily particles of the wood, coated with the unconsumed oil.

7.—THE CAMPHOR TREE.

Dissolve camphor in warm spirits of wine,
pirit will dissolve no more; pour some of the so
into a cold glass, and the camphor will instantly crystallize in beautiful tree-like forms.

8.—THE FROST TREE.

Take a glass jar, and fasten a wire across the bottom of it immovably, so that you can suspend by it a sprig of spruce, fir, or some such plume-like bough. On a red-hot plate of iron lay some benzoic acid, which will burn with a thick white vapour. Set the jar over the iron plate, and the vapour will be caught by the sprig and crystallize on it like hoar-frost. Exclude the air, and it will remain an ornament for a long time.



ELECTRICITY.

Experiments with Articles easily obtained

Glass tubes, sticks of sealing-wax, and sulphur are useful when only small quantities of electricity are required. Glass tubes should be about three feet long, and as wide as can be conveniently grasped. The thinner the glass the better, if it will bear sufficient friction, which, however, need be but very gentle, when the tube is in good order. It is most convenient to have the tube closed at one end; for the electric matter is not only thereby best retained on its surface, but the air may be more easily drawn out, or condensed in it, by means of a brass cap and valve fitted at the open end.

The best rubber for a smooth glass tube is the rough side of a black oiled silk, especially when a little amalgam of mercury or other metal is put upon it. A little beeswax drawn over the surface of a tube will also greatly increase its power. In rubbing a tube, the

hand should be kept two or three inches below th upper part of the rubber, otherwise the electricity wi discharge itself upon the hand, and nothing will remai upon the tube for the experiment. When the tube is i very good order, and strongly excited, it will throw o many pencils of rays at every stroke, without th approach of any conductor, except what moisture ma float in the common atmosphere. An unpolished gla tube, a cylinder of baked wood, a stick of sealing-wa or sulphur, &c., is to be rubbed with soft new flannel rabbit or cat skin, tanned with the hair on.

ELECTRICITY OF THE CA

During cold weather take a friendly c room, and draw your hand quickly over h times, in a contrary direction to that of t cat be black, and the experiment be n room, the sparks may be seen. Very di ct cha of electricity may also be obtained by touc g the of the ears, after applying friction to the ba k, and same may be obtained from the foot. Placing the on your knees, apply the right hand to the back, left fore paw resting on the palm of your left h apply the thumb to the upper side of the paw, so extend the claws, and by this means bring your finger into contact with one of the bones of the where it joins the paw, when, from the knob or e this bone, the finger slightly pressing on it, you feel distinctly successive shocks, similar to thos tained from the ears.

SIMPLE TRICKS.

1st.—Take a piece of common brown paper, the size of an octavo book. hold it before the f

quite dry and hot; then draw it briskly under the arms several times, so as to rub it on both sides at once by the coat. The paper will be found so powerfully electrical, that, if placed against a wainscoted or papered wall of a room, it will remain there some minutes without falling.

2nd.—If the paper be again warmed, and drawn under the arm, as before, and hung up by a thread attached to one corner of it, it will hold up several fleecy feathers on each side. Should these fall off from different sides at the same time, they will cling together very strongly; and if, after a minute, they be all shaken off, they will fly to one another.

3rd.—*Sparks from Brown Paper.*—Thoroughly dry before the fire some rather strong brown paper; place it on your thigh, holding it at the edge, while, with the cuff of your woollen cloth sleeve on the other hand, you rub it smartly backwards and forwards for about a minute; if the knuckle be then placed near the paper, it will emit a brilliant spark, accompanied by a snapping noise: the prongs of a fork similarly placed will produce three distinct streams of light.

4th.—Warm and excite the paper, as before; lay it on a table, and place upon it a pea-sized ball made of elder-pith, which will immediately run across the paper. If a needle be pointed towards it, it will run to another part, and so on for a length of time.

5th.—*With Writing Paper.*—Place an iron japanned tea-tray on a dry, clean, beaker glass; then take a sheet of foolscap, and hold it close to the fire until dry, but do not scorch it. Hold one end of this fine electric down on a table with the finger and thumb, and give it a dozen strokes with a large piece of india-rubber, from left to right, beginning at the top. Now take it up by two of the corners and bring it over the tray, and it

will fall down on it like a stone: if one finger be now brought under the tray, a sensible shock will be felt. Next lay a needle on the tray, with its point projecting outwards; remove the paper, and a star sign of the negative electricity will be seen: return the paper, and the positive brush will appear. It will give a spark an inch long, strong enough to set fire to some combustible bodies. If four beaker glasses are placed on the floor, and a book laid on them, a person may stand on them insulated; if he then holds the tray vertically, the paper will adhere strongly to it, and sparks may be drawn from any part of his body; or he may draw sparks from any other person, as the case may be; or he may set fire to some inflammable bodies, by touching them with a piece of ice.

6th.—*With Sugar, Quartz, or Flint.*—Rub two pieces of fine lump-sugar together in the dark, and a bright electric light will be produced. A more intense effect may be produced with two pieces of silex or quartz, the white quartz being best, even by rubbing the pieces of quartz together *under water*.

7th.—Lay a watch down upon a table, and on its face balance a tobacco-pipe very carefully. Next take a wineglass, rub it quickly with a silk handkerchief, and hold it for half a minute before the fire; then apply it



Fig. 169.

near to the end of the pipe, and the latter, attracted by the electricity evolved by the friction and warmth in the

former, will immediately follow it; and by carrying the glass around, always in front of the pipe, the latter will continue its rotatory motion; the watch-glass being the centre or pivot on which it acts.

8th.—*With Silk Stockings.*—Take two new silk stockings—one black, and the other white—and having heated them well, put them on the same leg; the action of putting them on will electrify them. If you then pull them off, one within the other, making them both glide at the same time on the leg, they will be found so much electrified that they will adhere to each other with such force as to support a weight which was equal at least to sixty times that of one of them. If you draw the one from within the other, pulling one by the heel and the other by the upper end, they will still remain electrified, and swell out in such a manner as to represent the shape of the leg. If one stocking be presented to the other at some distance, they will rush towards each other, become flat, and adhere with a force of several ounces. But if the experiment be performed with two pairs of stockings, combined in the same manner, the one white and the other black, on presenting the white stocking to the white, and the black to the black, they will mutually repel each other. If the black be then presented to the white, they will attract each other, and become united, or will tend to unite, as in the last experiment. The Leyden jar may be charged with these stockings.

9th.—*With Sealing-wax or Amber.*—Rub a piece of sealing-wax or amber upon the sleeve, and, while warm by the friction, it will attract straws or small pieces of paper. If a poker, suspended by a dry silk string, be presented to the upper end of an electrified tube, then the lower end of the poker will exhibit the same phenomena as the tube itself. But if for a metallic

body a stick of glass or sealing-wax be substituted, these phenomena will not occur, which proves that the electrical fluid does not pass through these substances.

10th.—*Schonbein's Electric Paper*, which is transparent and waterproof, has peculiar properties. Rubbing two sheets together with the hands, they will become inseparable, and in the dark flashes will be seen passing between the surfaces where not meeting. A thin and very dry sheet, only passed over once by the hand against the wall, will cling to it for hours. It is thus that a card made of this material can be shown to adhere, without visible cause, to a plane surface.

THE ELECTRICAL, OR FRANKLIN'S KITE.

Take a silk kite, say, six feet long. Fasten to the head of it a thin iron wire, on the front side, reaching the point where the string is made fast; and on the other side ending in a sharp point projecting beyond the kite about a foot, so that when the kite is flying the wire will stick out vertically. Around the cord must be bound very fine copper wire, since dry hemp is a bad conductor. To the end of the cord is attached two yards of silk twine, to insulate the kite. Near the silk line is a tin tube, one foot long and an inch in diameter, connected with the kite-cord.

Performance.—Having flown the kite while a storm is near, fasten the silk cord to some fixed object, where the silk will be kept dry. The string must not be touched, except with a discharger. A straw has been attracted from the ground to the tin tube, where it drew off the electricity with a formidable flash of fire, some inches long, and a fearful thunder-clap. Even in fine weather, such a kite will often become electrified, so that it would be dangerous to touch the cord.

ELECTRICAL DANCERS.

A warmed pane of glass, supported at each end on a book or block, if rubbed briskly with a dry flannel or soft silk, will make any bran placed under it leap up and dance about. In a box with a glass top may be little images of men, weighted slightly at the feet, of electrifiable material, which, on friction of the cover, will dance up and down amazingly.



Fig. 170.

THE FLYING FEATHER.

Having electrified a glass tube, hold it near a small feather or piece of gold leaf. It will fly to the tube, remain there a few seconds, and then fly off. If the tube is kept between the feather and wall, it may be driven round the room, the same side of the feather being always opposite the tube. If the feather should be attracted by a rough electrified tube or stick of sealing-wax, it will fly between that and the one you hold until the fluid is exhausted.



TRICKS WITH THE LEYDEN JAR.

THE ELECTRICAL EARTHQUAKE.

BUILD up a church, house, palace, or castle, with building blocks, on a wet board, in a tub of water, and send a shock over the board and the surface, when the agitation will bring down the edifice in a heap of ruins, without exhibition of the cause.

IMITATION THUNDERSTORM.

Let A A be a wooden stand, with two uprights, B B; C C are two small pulleys, over which a silken cord can pull easily; E is another silken line, stretched across from one upright to another; on these silken cords two pieces of thin cardboard, covered with tin-foil, and cut so as to represent clouds, and furnished with two small brass balls, are to be fixed horizontally, and made to communicate by means of thin wires, F and G, one with the *inside*, and the other with the outside of a charged jar, D. Now, by pulling the loop of the silk line E, the cloud 1 will be brought near the cloud 2; continue this

slowly, until the clouds are within an inch of each other, when a beautiful flash, strongly resembling lightning in miniature, will pass from one cloud to the other, restoring electrical equilibrium.

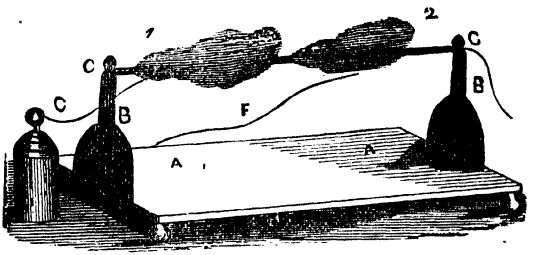


Fig. 171.

THE ELECTRICAL MILL-WHEEL.

Make a wheel, by inserting six or more glass spokes in a common centre, each eight inches long, and ending with a leaden ball. Set it, exactly balanced, on a small vertical axis, turning easily in a glass rest; and on a glass stand charge one jar positively, and another negatively, and put the wheel between them, with the knobs of each jar but a quarter-inch from the rim of the wheel. On turning the wheel, and making one ball come up to the knob of the positive jar, it will be attracted, and keep on turning; while on passing, it will become positively electrified, and hence repelled. So with the negative knob, which will attract the non-electrified ball, and, on its passing, electrify it negatively, and therefore repel it when it shall have passed. As all the other balls are served alike, the result will be a constantly accelerated circular motion, lasting until the jars are exhausted of electricity.

THE PRISMATIC COLOURS.

If you discharge electricity from a fine point against a polished tin plate, there will appear, first, a dull red ring round a central spot; after four or five shocks, a shaded circle, only visible at an oblique position from the light, which expands but little more. A second ring will next be marked, which also remains unalterable. And, lastly, a third ring will be marked after some thirty discharges. All the colours of the rainbow will be seen, extending from the edge of the centre ring, the innermost most vivid, and the inner rings closest together. A feather or the finger will not rub it off; but anything sharp will remove it.

TO LIGHT A CANDLE BY A SPARK.

Wrap some loose cotton round a long pin, or bit of wire, powdered with resin dust, and apply the naked end to the outside of a charged jar, and the resined end without delay to the knob, when it will flame up long enough for a candle to be lit by it. With a large jar, soaking the cotton wool in oil of turpentine will succeed as well. A piece of camphor, or of phosphorus, wrapped in cotton wool, will take fire even more readily.





X

TRICKS WITH THE BATTERY.

THE ELECTRICAL ORRERY.

To the knob of the conductor, fit six inches of brass or iron wire upright, ending in a point, fitting in a socket of a rod twelve inches long, exactly where it will be balanced. At one end of the rod is a gilt ball, representing the sun, while the other end is turned up at right angles about three inches, to support another rod, as on a pivot. This second rod, six inches long, has at one end a small globe, mapped out like the earth, and at the other a silver ball, representing the moon. Let the proportions be: the earth one-third the size of the sun, and the moon one-third that of the earth, exactness being no consideration. On admitting the fluid, its escape between the first pivot and the sun will make the latter turn round, and so the second rod will have to turn, carrying the moon around the earth, and the two around the sun. There will have to be a sharp point of metal between the first pivot and the sun, and another between the second pivot and the moon, t

reduce the friction at the second pivot below that at the first, and to prevent the globes remaining motionless. If the earth and moon are very light, they will revolve a dozen times faster than the sun.

THE BEWITCHED PAPERS.

Put a basket, holding scraps of paper, on an insulated stand, and let on the fluid; the papers will chase one another about and fall around outside the basket, like a theatrical snowstorm. A metal disc will answer better than a basket, or, indeed, might form the bottom of the basket.

CURIOUS EFFECT OF ELECTRICITY.

Fish can be kept fresh and eatable for two weeks, whilst under the action of electricity; after that time, the apparent freshness remains, but all taste is destroyed.

TO MAKE A WAX FEATHER.

Stick a wire in the end of the conductor, and at its point attach by heat a stick of sealing-wax. Under the wax hold a light till it melts soft, when, on sending the current through it, it will be driven out in spray-like threads, in different directions.

GEISSLER'S TUBES.

Take three feet of glass tube, and fill it with pure mercury; invert it, as in making a barometer-tube, and the space left, when the mercury ceases to run out, will be a Torricellian vacuum. Hermetically seal it. Let

one end of this tube be held in the hand, and the other applied to the conductor, and immediately the whole tube will be illuminated from one end, and, when taken from the conductor, will continue luminous, without interruption, for a considerable time; very often about a quarter of an hour. If, after this, it be drawn through the hand either way, the light will be uncommonly brilliant, and, without the least interruption, from one end to the other, even to its whole length. After this operation, which discharges it in a great measure, it will still flash at intervals, though it be held only at the extremity, and quite still; but if it be grasped by the other hand at the same time, in a different place, strong flashes of light will dart from one end to the other. This will continue for twenty-four hours, and often longer, without any fresh excitation. This experiment has been called the electric Aurora Borealis. Small and long glass tubes, exhausted of air, and bent in many irregular crooks and angles, will, when properly electrified, exhibit a very beautiful representation of vivid flashes of lightning.

To make glass tubes air-tight, melt one end till it is closed together.

CAMPHOR ELECTRIFIED.

While the fluid passes through lighted camphor in a spoon, it can be seen shooting out branches like a growing plant.

SPIRIT-RAPPING.

In one room have an electric battery, connected by wires hidden under the floor and in the hollow leg of a table in the next apartment. with a hammer, working

on an axle at one end, and raised up by the action of the current. If your confederate lets on and cuts off the current at regular intervals, raps can be made on the inside of the table-top, where the hammer is concealed, in agreement with a system of correspondence of which the audience are informed.

TO LIGHT A HUNDRED GAS-JETS WITH ONE PISTOL-SHOT.

This is a modification of an older trick, and is managed by connecting the gas-burners with a wire, along which an electrical current can be sent. At each jet is a little grain of phosphorus; the gas being turned on at a signal, the magician fires a pistol in the air; a confederate emits the electrical discharge, which runs from burner to burner, firing the phosphorus, which kindles the gas. Herr Dobler used to perform it with candles, the wicks soaked in spirits, and the phosphorus stuck on the wick, the wire running from one candle to another, as in the altered case above explained.

THE ELECTRICAL WINDMILL.

Form a cross of two lengths of wire, with the points bent back a little, at almost a right angle. Set it on a steel pivot, raised perpendicularly, so that the cross will turn horizontally. Insulate the machine and its plate, and electrify the steel point by the conductor. The four branches will turn opposite to the direction of the bent points as long as the electricity impels them. In the dark pencils of light will shoot from them to make a ring of fire; or other rings, if the branches are unequal in length.

Several stages of such crosses of different sizes, if

smaller as each was higher, would form a revolving luminous pyramid.

To make the Electrical Horse-race, fasten cardboard horses to the points of the arms of the cross.

THE WHEEL ROLLING UP HILL.

At the four corners of a wooden board set as many rods of glass, gutta-percha, sealing-wax, or any other non-conductors, connected with fine wires from the tops, so that one pair being longer than the other, the outline of an inclined plane is traced. Make a cross of iron wire, with the points turned, as in the foregoing experiment, mounted on a fixed axle, the ends of which will support it by being a little beyond the wire road each side. Connect this at the lower end by a chain from the conductor, and the fluid will run up the wire road into the wheel, and set it turning till it reaches the top. A little carriage might be so worked.

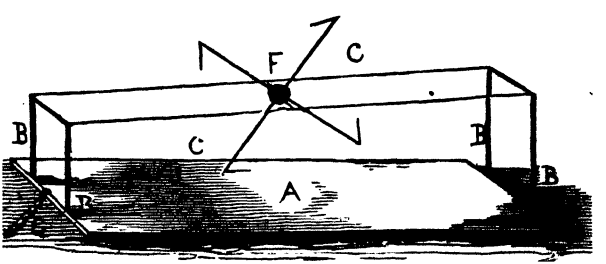


Fig. 172.

THE ARMS OF THE MEDICI.

In the escutcheon of the Medici are figured seven spheres, red on a gold ground. Hence the title of the following experiment:—Make seven pith-balls, and tint them red with ochre. Place them on the table, and having filled a tumbler with electricity, by applying its inside to the knob of the conductor, cover the balls with the glass. They will leap up and dance about for some time.

THE ELECTRICAL FOUNTAIN.

A vessel of water being hung where it can be electrified, put a capillary (*i.e.*, hair-like) tube syphon in it. If the electric action be powerful, the water will spout out of the lower leg of the syphon in a number of streams forming a tube; if not strong, it will flow in a steady stream, though, naturally, the water would only have issued drop by drop.

THE CUP OF TANTALUS.

Electrify a metal cup of liquor on an insulated stand. As long as the current is kept up, no one can put his lips to the cup without being shocked. Break the current, and any one can drink without pain.

FIERY WRITING.

Cut out small diamonds of tin-foil, and gum them on a thin plate of glass, to form the outlines of letters, figures, or what you please, but not touching one another. Connect the end of one letter with the nearest of the next by a thin bent metal plate, terminating

at each end in a sharp point. A similar plate must run from the first letter, and another from the last letter, in

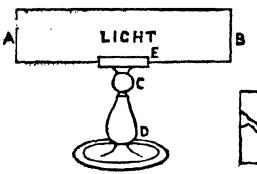


Fig. 173.



Fig. 174.

each case, to the edge of the glass plate. On connecting the first metal plate with the conductor, when you touch the last, the fluid will trace the lines in sparks. If the last plate ends in a non-electric mass, the explosion between each diamond will render the figure very dazzling.

Since the fluid would, in such letters as O, for instance, not go around in a circle, but jump from the first to the last square, it must be circumvented. Mark one half the letter on one side of the glass, and the rest on the other, connecting the two by a narrow metallic band, which, running from the face to the back of the glass, shall carry the fluid from the last square of the first half of the O, for example, to the first square of the second half of the same letter, and, then uniting by a similar band the last square of the second half with the first square of the next letter.

THE ELECTRICAL GALAXY.

Bore some holes in a black board, following the outlines of constellations, such as the Southern Cross, Berenice's Hair, &c., two holes at each point, through which insert a doubled pointed wire, with the ends

brought together exactly over the mark. Let the wires be of various sizes, as the stars themselves differ in

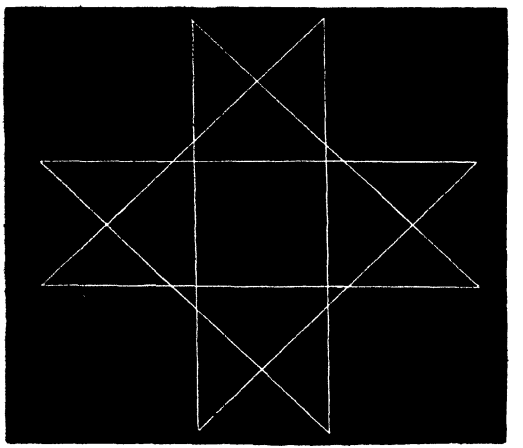


Fig. 175.

magnitude. Let the wires at the back be all connected together, and with the conductor, so that the passage of the electricity off by the points will shine, and continue in splendour as long as the supply endures.

THE SELF-GUARDED CROWN.

Have a large print, say, of her Majesty, with frame and glass. Cut out the picture, about two inches from the frame, and paste the border inside the glass; fill up the vacancy on that side with tin-foil or gold-leaf, gummed on smoothly. Cover in the same way the inner edge of the bottom part of the back of the frame with tin-foil, and make a communication between it and the tin-foil backing the glass. Now cover the other side

of the glass with tin-foil, exactly over that on the back, and, when dry, paste the print over it, so as to fit the space underneath where it was cut from. On the Queen's head place a movable gilt crown.

Electrify the double tin-foil, so that anyone trying to take off the crown with one hand, whilst he holds the frame and touches the foil with the other, will receive a shock, and the apparatus is complete. If a number of persons form a ring to receive the shock, the trick is called "The Cabal, or the Conspirators."

THE ELECTRIC CLOCK.

A spiral spring of suitable strength is fixed at one end on an arbour of the mechanism to be moved, and at the other end on a ratchet wheel movable on this arbour. A stop spring holds the wheel in the position required for giving the necessary tension to the spring. This spring draws round the arbour and the centre wheel, which turns the second wheel by means of a pinion. The second wheel is provided with pins serving to raise a light copper rod or spring for shutting off the current from a battery passing through the electro-magnet.

THE DEMON HANDS.

You are walking up and down in a room where your friends have been invited, and nothing is more natural than that you should advance to each acquaintance as he enters, and perhaps give him a cordial shake of the hand. But what will be the amazement of the by-standers when they see your friend, however grave and inactive a man in ordinary life, now proceed to caper as if bewitched, contort his face, and try in vain

to disengage his hand from your grasp. In a word, you have a portable battery upon you, with its discharging wire running down your arm, in the sleeve, to your hand, where a simple spring enables you to cut off the current when wished.

But be careful that you, as the biter, are not bit. A previous sufferer by your diversion, who had come provided with a more powerful machine, might return you shock for shock, to your discomfiture.

The son of one of Torrini's pupils, the Marquis de Malviventi, fell into his own trap during an electrical surprise. He had gone to a masked ball, given by the Duke of Aosta, in the character of Rigoletto, and in the hump of that tragic Punch he had an electrical apparatus cunningly ambushed. The wires running along his arms and legs permitted him to startle his friends and play other amusing freaks. He had a great success: a crowd encircled him, but kept their distance. All of a sudden, as he was craftily approaching a lacquey with a tray of ices, he gave a loud and unmusical howl. The footman leaped ten feet in the air, and knocked down a group of candles, which fell, extinguished in the ices happily, on the satins of the ladies, whilst the marquis began a dance of the most remarkable character. This way flew his arms, and that way kicked out his legs; he gambolled like a human Jack-on-wires, a boneless acrobat, a veteran clown, an india-rubber man. The higher he bounded, the swifter he whirled round, the more frantic his gestures, the more loudly the throng applauded, as still thicker and more thick it grew. At last he managed, amidst divers inarticulate sounds, to utter the words, "Help!—remove my hump!" A friend, in the secret, ventured to approach him, though his arms were performing windmill work and his lower limbs outvied in vigour and variety of movement the

cork leg of the legend, and tore off the hump and its battery. The fact is, the machine had become disarranged, and subjected him to its galvanic fury.

THE ELECTRIC BELL.

It is sometimes of advantage to have the number of spots on a card or die, or the hour, sounded from a distant part of the room, while you, by your table, simply wave your wand. Nothing more easy, with an electric current at your service.

Fasten a thin strip of copper, or other suitable metal, A, flat on a piece of wood, B, which rests on your table.

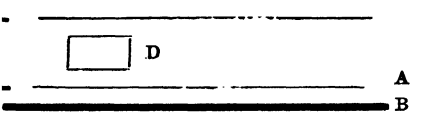


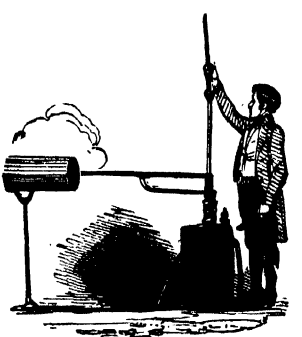
Fig. 176.

Let C be just such another strip of metal, insulated from A by a piece of ivory or ebonite, D; E E are the wires. Untouched, C will remain apart from B, and the current is broken; but on pressing its end down on the end of B the circuit will be closed. Every contact of C and B will result in a like tap on the bell at the further end of the wire, wherever concealed.

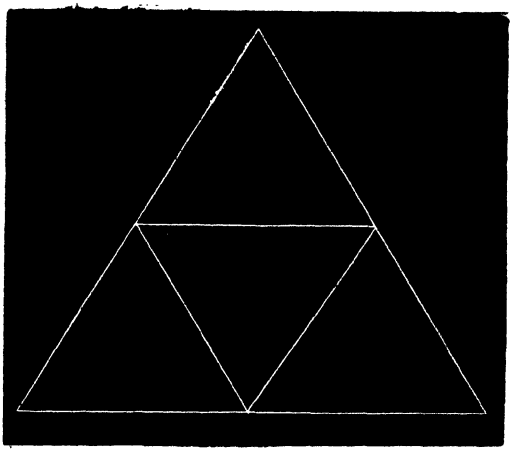
THE ELECTRICAL ROSARY.

On a copper wire, wound round with silk, string a number of iron beads (common steel beads will answer, but not good steel ones, which would become permanently magnetized for an appreciable length of time).

Separate the beads from contact, and hang up the wire. On touching the ends of the wire with the conductors of a battery, galvanic or electric, the beads will fly together. Break off the circuit, and they will separate again.



THE ELECTRIC CANNON



TRICKS IN MAGNETISM.

A COMPASS NEEDLE ON A THIMBLE.

Cut off the point of a long, fine needle, so as to leave it two inches in length, and bend it a little in the centre by heating it. Fasten a grain of sealing-wax, in the middle, and stick the point cut off in the wax, which will be a socket in which it pivots. Magnetize the needle by half a dozen strokes from the centre to one end, and from the other end to the centre, and mount the upright in one of the top indentations of a thimble. If well balanced, it will turn and set due north and south, and answer to the presence of a piece of iron brought near it.

ARTIFICIAL MAGNETS.

In a vessel half full of clean water put a quantity of iron filings, which are to be agitated till they grind one another into fine dust. Dry this powder, and mix it into paste with linseed oil. Squeeze into shapes, and

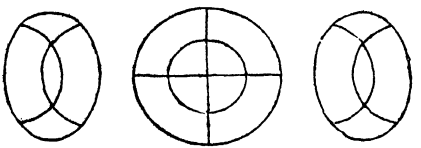


Fig. 177.

dry by a slow fire till hard. Place these blocks for a few seconds between the extreme ends of powerful magnets, and they will become strongly impregnated.

THE CHAIN OF BULLETS.

On the top of two uprights, lay two magnetic bars, about three inches distant at the ends. Put some steel

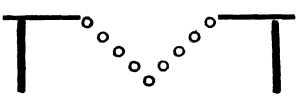


Fig. 178.

bullets between the bars, when they will become connected by the fluid; but, their weight making them sway down in the middle, they will form a chain.

THE MAGNETIC WAND.

Take a rod of any compact wood, ten inches long by a third of an inch thick, and drill a small hole through it to contain a strongly magnetized steel wire. Screw on an ivory knob at each end, differently carved, so that you can tell by the touch alone which is the north and which the south pole of the imprisoned steel wire.

When you hold out the south pole of the wand to the south pole of a magnetized needle freely suspended on its pivot, or to any light body floating on water containing a bit of magnetized steel (as a toy swan, fish, boat, &c.), it will be attracted to your wand. Reversing your wand, you can drive the object away, or, at least, make it turn so as to present the opposite pole.

BRESLAU'S MAGIC SWAN.

If the blade of a clean, dry knife be dipped into a basin of cold water, the particles of each of these two bodies do not seem to come in contact with each other; for when the blade is taken out, the water slides off, leaving the blade quite dry, as if it had been greased. In the same way, if a needle be laid horizontally on a glass of water, it will not sink, but forms a kind of trench on the surface, on which it lies, and floats about, following in all directions the movements of a magnet, or, rather, being repelled or attracted according to which pole is presented to it. Take a large basin nearly full of water, and paint the letters of the alphabet in order round the rim. Run a steel or iron bar through the cork body of a duck, swan, Triton, Nereid, Syren, or similar figure, covered and moulded of white wax, painted as you please, and loaded to float naturally, and set it in the water. Desire a person to mention any name, which the swan shall spell, and supposing Alexandra to be mentioned, you point with your magnetic wand (previously described) to the letter A, and the magnet attracting the bar concealed in the swan, causes it to stop at that letter, and so on until the name be spelt.

MAGNETIC ANGLING.

The figure of a fish is thrown into the water, with a small magnet concealed in its mouth. Of course, if a

baited hook be suspended near it, the magnet and iron, by mutual attraction, will bring the fish to the bait. The fish can be made of cork, or hollow, of metal sides, soldered together.

HOUDIN'S OBEDIENT WATCH.

You borrow a going watch. On holding it to the ear of different members of the company it is found that some cannot hear its ticking, while others, not more sharp of ear in other matters, can count the beats.

Explanation.—In the palm of one hand, under your glove, is hidden a magnet. When the watch is held in that hand, the action of the magnet on the balance-wheel stops it. When presented in the other hand, it resumes its working.

THE FIGURE OF FILINGS.

Upon a sheet of paper, a plate of glass, or a board, place some iron filings. A magnet moved about beneath

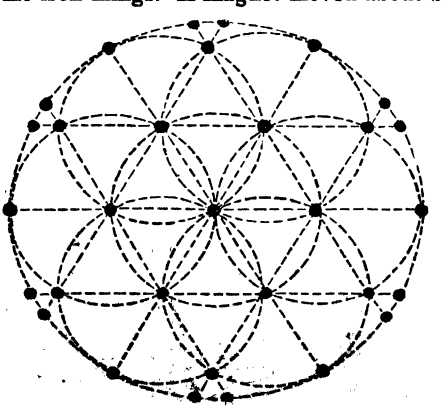


Fig. 178.

the board, will follow its movements in a quite amusing manner. If the filings are sifted on the board while the magnet is underneath, they will arrange themselves surprisingly. At each pole there will be a vast abundance standing erect, and there will be fewer and fewer as they recede, until there are scarcely any in the middle. It was on this principle that it was suggested how Kempelen's Chessplayer (the so celebrated Automaton) was manipulated. The chessboard upon the table top should have the squares exactly marked out under it, so that a man beneath could see them; from the centre of each square was to hang an iron ball by a silk thread. Each chessman was to have a magnet in its base. Therefore the concealed man was informed on every move, since, whenever a man was put down on a new square, the ball in the square underneath would fly up to the magnet.

THE TIME-TELLING FLY.

Hang an iron fly by a thread, so that when it swings it will strike a gong or bell. You can use your magnetic wand to make it fly against the gong and strike the hour; or—since the hidden agent in the wand may be suspected after your foregoing experiments—let a common wand be examined, and none the less perform the feat with it in your hand, since you will wear a ring

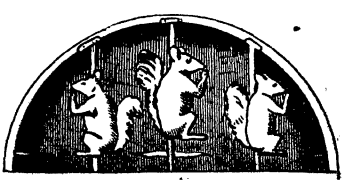


Fig. 180.

in which is set a magnet as the stone. (Sir Isaac Newton had a natural loadstone mounted in a ring, which was of great power.) Instead of a fly, an animal's figure, retained by an elastic cord, can be used, drawn from its den, or up a pole, on a table covered with the letters of the alphabet, to answer questions.

TO CALL A CARD FROM THE PACK.

You must prepare a card, by damping it so that the layers will separate, and you can thrust a thin tape of steel down the middle, an addition which will not appear if the card is pressed into its original condition. Force one of the company to select the card of the same suit and value as your prepared one—let us say, the king of hearts—and, in pretending to put that card in among the others, substitute your duplicate. The cards can then be shuffled by any number of persons. Let them be thrown down loosely on the table, when you run your hand, containing a concealed magnet, over them. The card with the steel will leave the others. Instantly taking it up, you make away with it, and carelessly throw down the real one to be examined.

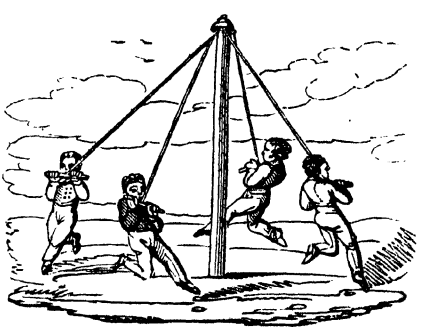
MAHOMET'S COFFIN.

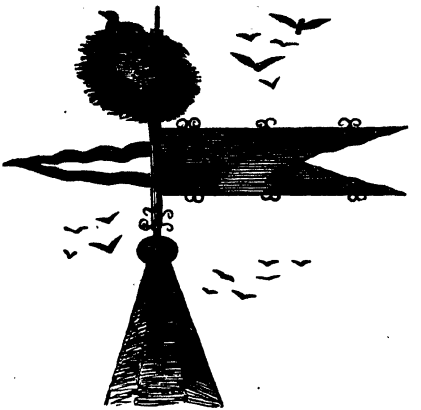
Have a model, nicely made, of a mosque, in the dome of which you set a magnet. Let a coffin be made of steel, painted with Arabic characters, and fasten to the centre of its under side a piece of the fine wire used by florists, which is almost invisible. The lower end of the wire is fastened to the floor, so that the coffin must remain in the air, restricted from reaching the magnet. Let the mosque be full of dim, religious light, so that the wire is unseen, and a glass shade be put over all.

In similar ways can be illustrated Sinbad's ship running on the Loadstone Rocks, or the comical tale of the traveller who, entering a cave of loadstone, was surprised, no doubt, to find himself turned upside down, and hung by the steel spurs on his heels to the roof, from which he only released himself by taking off and leaving there his boots.

A STRING OF NEEDLES.

Magnetize several needles, and, on taking up one with the magnet, all the others will follow, each one clinging to the next above it.





THE MAGIC OF AIR.

BACCHUS AND THE WINE.

HAVE some wine, or coloured water, in a toy cask, astride of which is a figure of Silenus, Bacchus, &c. There must be some air with the wine in the cask; a



Fig. 181.

glass tube leads up into the mouth of the figure. The dress must be loose, and covering a bladder fastened round the body with a little air in it, so that, when the whole is placed under the receiver, and the air is exhausted, the aldermanic rotundity shown will seem to be the result of the wine-bibbing.

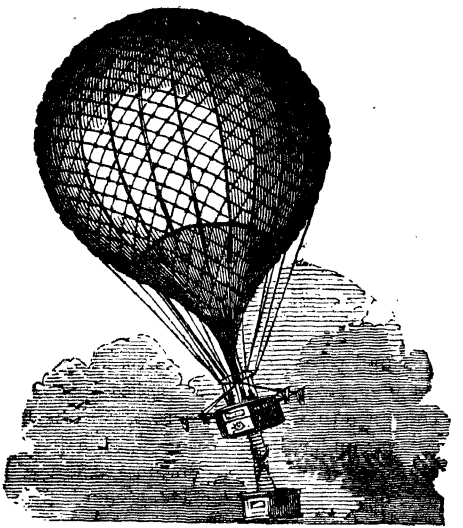
TO EXTRACT A CORK FROM A BOTTLE.

Put the bottle under the receiver of an air-pump. On exhausting the air, that within the bottle will expand and force out the cork.

PARACHUTES.

Take a round piece of light paper, and fasten thread around the edge, regularly, a few inches apart, the lower ends to converge to a point where a cork is fastened. The air getting under, it will swell out the paper like a dome, and carry it to a considerable distance. Parachute shells have been made, which, exploding at the height of several hundred feet, let out a parachute, from which is suspended a magnesium light, which illuminates the country for a large space around.





BALLOONS AND BUBBLES.

THE GAS BALLOON.

SMALL balloons are to be made of thin sheet india-rubber or gutta percha, tissue paper, bladder glued with marine glue, &c.; large ones of oiled silk. In the first place, make a pattern by cutting out twelve or more gores of paper, in the shape of pointed ellipses, such as a cutting of orange-peel would be, made by two strokes of a knife from point to point diametrically opposite, the distance between the cuts at the widest place being an inch. As many of these pieces should be pasted together as will form a globe with a pear-shaped end. This succeeding, cut out of oiled silk the same number

of pieces by one of the paper patterns, allowing for the lapping over at the edges, and join them with marine glue, or by varnish and sewing. At the lower end insert a tube, and tie all the points of the gores firmly around it. Cover all with varnish (india-rubber dissolved in naphtha and turpentine). Cover all with a bag of netting, the lower cords of which will support a car or weight.

TO FILL A GAS BALLOON.

Insert the end of a tube, leading from a vessel of gas, hot air, &c., in the mouth of the balloon, and tie up when filled out. Fire balloons either have a framework of metal in their mouth, which holds a cup of spirits and an ignited sponge, or are filled from a dish of ignited spirits by a cone of iron, on legs which bestride the dish, leading the hot air up into them.

To make the Gas.—Put a pound of granulated zinc or iron filings in two quarts of water in a stone jar, and add gradually a pint of sulphuric acid. Have a tube run through a bung, with which you cork the jar, and fill the balloon at the other end of the tube.

THE EXPLOSIVE BALLOON.

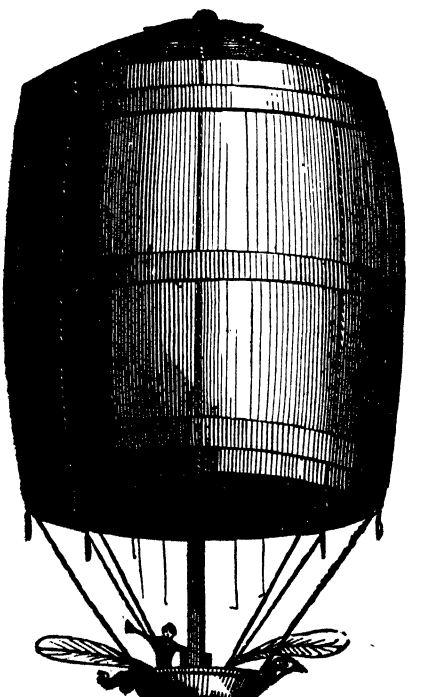
Into a balloon put a mixture of chlorine and hydrogen gas. Stop up the mouth, and let it rise in the sun. In a few instants it will burst with a loud explosion.

SOAP BUBBLES.

If the bubble be blown of soap and water in a glass shade, which is instantly shut down on it, it will last for a long time. Bubbles can be blown of melted glass from the end of a pipe. Nearly all the essential oils will make nice coloured bubbles; also melted resin.

MINIATURE BALLOONS.

Procure a bladder furnished with a stop; fill it with hydrogen gas, and then adapt a tobacco-pipe to it; dip the bowl of the pipe into soap and water, and, by pressing the bladder, soap-bubbles will be formed, filled with hydrogen gas; these bubbles will rise in the air as they are formed.





THE MAGIC OF WATER.

MOTION is given to water by two powers, the pressure of the air and its own gravity.

TO KEEP DROPS OF WATER SEPARATE, THOUGH BROUGHT INTO CONTACT.

A sheet of paper having been rubbed with the almost invisible seed of the lycopodium plant, or "puff-ball," water dropped on it in small quantities will scatter into distinct globules, which will roll over the paper swiftly, and but slightly touch the surface.

TO SWALLOW A GLASS OF WINE THROUGH A MOUTHFUL OF WATER.

Fill your cheeks with clear water, and put the glass of wine to the middle of the lips, against which press the tongue formed into a sort of tube, through which you must suck the wine carefully towards the palate. The water can then be spirted out without being even reddened by contact with the wine.

THE HARMONICA TRICK.

You have on a stand a harmonica of eight glasses of the same size, which emit the same sound. But you say: "The common sort of tuners of organs, violins, and pianos are but dull fellows beside a magician. They bungle for half an hour over an instrument, and try the same pipe or string a hundred times before they can accord it."

Pour water into the eight glasses, and strike them with your wand, when they will exactly sound the notes of the gamut, and then you can play a little air.

Explanation.—Each of the glasses has a tiny hole in the side at different heights, so that, when water is poured in, there shall run out all that is superfluous beyond what is needed to give the exact tone.

TO TELL WHICH OF SEVERAL BASINS OF WATER HAS BEEN TOUCHED.

You confidently tell a company of spectators that, several vessels of water being taken—the number immaterial—and the hand of one of the observers being dipped for an instant in one glass, you—though absent when the dipping was performed—will guarantee to point out that identical vessel.

Explanation.—All the vessels contain distilled water, which is pure, and not affected by chemical test. The skin is always ejecting imperceptible atoms, chiefly sodium, or common salt. You have a weak solution of lunar caustic ready, and test all the water. That basin in which a milky hue appears must have been that touched.

CLEVER PLAN TO MEND A WATER-PIPE.

A workman having to mend a broken lead pipe through which a current of water was passing with a pressure of fifty feet head, plugged the two ends and put broken ice and salt around them. In five minutes the water was frozen, the plugs taken out, a new piece soldered in, the ice thawed out again and the pipe set in perfect order.

EXPANSION OF WATER BY COLD.

"All fluids, except water, diminish in bulk till they freeze. Thus, fill a large thermometer tube with water, say of the temperature of eighty degrees, and then plunge the bulb into pounded ice and salt, or any other freezing mixture: the water will go on shrinking in the tube till it has attained the temperature of about forty degrees; and then, instead of continuing to contract till it freezes (as is the case with all other liquids), it will be seen slowly to expand, and consequently to rise in the tube, until it congeals. In this case, the expansion below forty degrees, and above forty degrees, seem to be equal; so that the water will be of the same bulk at thirty-two degrees as at forty-eight degrees, that is, at eight degrees above or below forty degrees."

TO SPLIT A LOG WITH WATER.

Bore out a log nearly to one end, like a cannon; fill with water, and put in a firm stopper. Expose the log to cold, and it will burst. Any freezing mixture will answer; for instance, three parts snow or pounded ice, and four of potash, mixed, which lowers the temperature forty odd degrees.

TO WATERPROOF PAPER.

Soak the paper or prints on which you wish to write or paint in a strong solution of alum in water.

MAGIC MAELSTROMS.

Throw thin scrapings of camphor on water, and they will spin about for some time. But oil or grease dropped upon the surface will make them cease to move, as if by a spell. The motion is more vigorous in hot than in cold water, but ceases more quickly. Or, soak slices of cork in sulphuric ether for three days in a closed vessel, and use them instead of the camphor.

HOT WATER LIGHTER THAN COLD.

Pour into a glass tube ten inches long, and one inch in diameter, a little water coloured with dye; then fill it up carefully with clear water, not mixing them; apply heat to the bottom of the tube, and the coloured water will ascend and mingle with the other.

THE WATER MALLET.

Take a strong, long glass flask, with a neck which can be sealed air-tight. Fill it one-fourth with water. Exhaust the air by an air-pump, and seal the mouth air-tight; or, by melting the neck with a lamp or blow-pipe, it will be most effectually closed. When this flask is shaken, the water descends or rises like one solid mass, and dashes against the glass with a sound like the stroke of a mallet.

Mercury will give a much louder sound, and, if pure, will be luminous, and, in darkness, its motion up and down the bottle will seem that of a stream of light.

A BIRD AMONG FISH UNDER WATER.

Get a glass fish-globe made double for you, with as much room inside as most cages afford a canary, and put in water and fish by a few holes in the outer rim, which will also give air to the inmates. Close up the mouth of the interior with a wire netting, furnished with a door, by which a bird or two can be let in, and a perch for the same.

A deal of astonishment will be furnished by the sight of the birds flying, or calmly perched, as it were, in among the *perch* themselves.

CURIOSITIES OF WATERWORKS

For ornamental purposes many ingenious devices have been originated, among which may be named figures of all sorts worked by waterwheels; the Chatsworth weep-

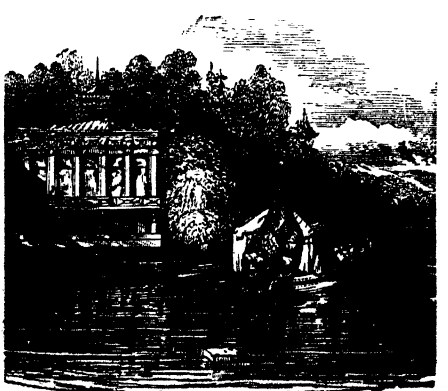
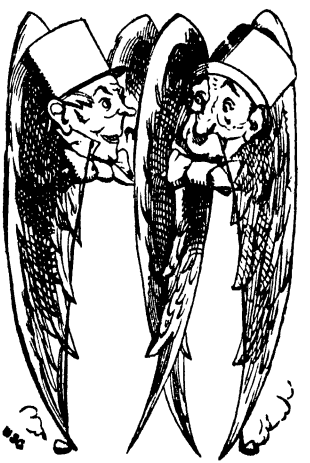
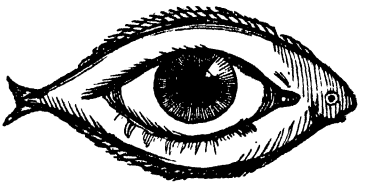


Fig. 183.

ing willow, which showers water from its branches on any one walking beneath; the balusters of a staircase, being sea-monsters, which spout the water, the higher to the lower, so as to form an aqueous rail; perpetual lamps; weeping statues; wells which are magnified Tantalus cups, &c.





THE MAGIC OF OPTICS.

OPTICAL RAT-TRAP.

In this trap a mirror is so arranged that the rat which looks at the bait shall see his own image reflected in such a position as will lead him to believe that a second rat is trying to get before him in seizing the bait; and when the first rat has been caught, his image will be reflected by a mirror, so that the next rat who shall look at the bait shall see two rats apparently striving to seize it, thus decoying him upon the turning-table, which yields to his weight, and precipitates him into the body of the trap. It is needless to add that this is but a practical application of the fable of the Dog and the Bone, enforcing the ever-new truth that the two birds in the bush are considered more desirable than the one in the hand.

THE MAGIC TELESCOPE, WHICH BRINGS THE FACE OF AN ABSENT FRIEND INTO VIEW.

Take an ordinary telescope D B, on a stand A, and place in it a plane mirror C, set at such an angle

that it will reflect anything, as if upright, set at the same angle facing it at the bottom of the tube or hollow stand A. This mirror C can be on a hinge, with a spring worked by pressure on a small knob, so that at needs the telescope can be seen all the way through. You must know, of those who try the experiment, whom they most have in their thoughts, and the likenesses of these persons are to be placed at the bottom of the stand. (*See* the construction of the Magnetic Well, in "The Secret Out," which has many points of coincidence.)

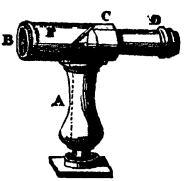


Fig.

A number of such photographs, mounted on metal discs, which can be moved in and out like blades of a knife, can be arranged, so that by your simple pressure that one will be uppermost which you wish the observer to see.

A MAGIC MIRROR.

With weak gum arabic water paint some shape on the face of a convex mirror, which will be invisible by daylight; but if the sunlight is let upon it, the interception of the rays by the coated parts will make them apparent.

THE ENDLESS VISTA.

Stand a looking-glass up, and, about a foot before it, place another of the same size. Place your eye in the

centre, just behind the top edge of the second glass, before which, near it, is stood a little figure, or any brilliant object. There will be seen as many as eight repetitions of the reflection in the first glass. If the second glass has its sides painted like columns supporting a roof, and the figure is of a person, there will seem to be an endless hall of pillars with a guard between each pair. The scene, if made fixed, requires a sheet of paper to be painted like a marble floor, in squares, so that the lines of the edges of the glasses shall agree with them. If sides are added, let them be in square panels, with decorations at pleasure, of transparent paper and colours.

TO TRANSFORM A FACE BY MEANS OF TWO LOOKING-GLASSES.

One of the two mirrors place horizontally; stand the other at about right angles. If you look down into the upright glass a little above the line of juncture, you will see your mouth enlarged and your chin raised. By inclining the glass a little towards you and moving your head up or down, other changes and multiplications will ensue, such as views of two noses and four eyes, three noses and six eyes, and so forth. If you place the edges of the same glasses together perpendicularly to form an angle, you can see a singular reflection of your face duplicated partly, but with an eye between two noses, two mouths, two chins, &c.

THE MAGIC BOX, BY WHICH A BALL IS SEEN ROLLING UPWARDS.

In a square box fix a board from a few inches above the bottom at the back to the lower edge of the front, with a serpentine groove on the surface, in which a ball

will roll without leaving it. Make a hole in the front side so that an eye placed there can see inside, but not so low as the inclined board; and, from a point a few inches above the eye-hole, to the place where the board meets the back of the box, set a mirror. The glass being very clean, and there not being too much light admitted within the box, a leaden bullet or heavy ball rolling down the inclined plane will not be seen, but its reflection in the glass will be visible, and, to all appearance, the ball itself will seem to roll upwards.

THE LIFE-LIKE BUST.

Place a plaster or marble bust before a concave mirror, with a chafing-dish between. On the coals sprinkle incense, evolving clouds of smoke. The image, seen on this varying screen, will seem to move its features as if vivified. The same experiment can be performed simply by waving a light before a statue, so that the variations in the lighted and shaded parts will not be fixed on the sight.

TO SEE INTO ONE'S OWN EYE.

Look at a candle four or five yards off through a short-focus double convex lens held near the eye, and there will be seen a large luminous disc, spotted and streaked, at first confusedly, but gradually settling down into a fixed picture of the internal parts of the eye—the cornea vessels, the lachrymal secretions, &c.

BURNING-GLASSES OF ICE.

A lens can be made of pure ice, free from salts and air-bubbles, by which the collection of sun-rays kindle gunpowder.

STORM-GLASSES.

Vases of glass inverted on a shelf, table, or other support easily vibrated, on the ground-floor, will almost always herald the advent of atmospherical disturbance by their agitation and singing.

A BOX FULL OF INTANGIBLE JEWELS.

Fill a tube in one end of a box with glass prisms, and, on letting the sunlight enter, the other side of the box, painted white, will seem covered with precious stones.

OPTICAL DELUSION.

Very few persons are aware of the height of the crown of a hat. Ask a person to point out on a wall, with a cane, about what he supposes to be the height of an ordinary hat, and he will place the cane usually at about a foot from the ground. You then place a hat under it, and, to his surprise, he finds that the space indicated is more than double the height of the hat. (For a trick on this same principle, *see* page 125 "Art of Amusing.")

CONFIRMATION OF A JOKE.

After having led a person to believe that his sitting in a draught has given him a swelling of the face, hand him a mirror which enlarges and distorts reflections of objects. The apparent corroboration of your assertion will for the time create some amusement.



ANDROIDES AND AUTOMATA.

THE TABLE FOR AUTOMATA.

FOR the automaton figures made to perform by means of air blown through or into them a table can be expressly prepared, in order to mystify the curious. Let the top be of glass, but double plate, set a little apart, so that the air, blown in between by a pipe leading up one leg of the table, shall go out by a minute hole drilled in the upper plate, just where you place the figure, and where the aperture in its stand can exactly cover it. For a figure to blow out a candle, blow a whistle, &c., this is excellent, as glass, from its transparency, seems to defy any complicity with your deceptions. (Other means are set forth at length in "The

THE FLUTE-PLAYER.

Construct a figure, or only the head, which may be of plaster of Paris, hollow, and large enough to contain, in the space behind the eyes, a bird. The figure may represent any character you please—say the Flute-player of Horace, a military musician in brilliant uniform, &c. The bird is to be perfect in a tune, in which art bull-finches and others of that tribe are trained; it is accustomed to sing only on your giving a signal—let us say the playing on an instrument, such as the piano or violin. You show the image to the audience, lifting it up to prove it is unconnected, and devoid of secret mechanism, though this is not necessary when before intelligent persons. You let ten or twelve slips of paper, on each of which is written the name of some musical air—one being that in which the bird is skilled—be handed round, and then put in a bag. One of the audience then shakes the bag and draws out one of the slips. No one looks at it, but you, waving your wand mysteriously, sit at the piano and play a few bars of the tune, which is at once repeated by the concealed inmate of the flute-player. The paper is opened, and the name of that tune which you and your little feathered ally sounded is found inscribed on it. You alone, and none of the audience, know that the bag has two compartments. Into one of them the twelve slips of paper fall, to be caught by a flap falling over them, so as not to be touched by a hand thrust in at the mouth. The flap falling, opens the other pouch, in which are twelve slips of paper, all bearing the name of the tune which your bird sings; therefore, it little alarms you however much at random the selector makes his choice.

You cannot repeat this trick, unless by chance your bird knows two or more airs, and you can rely on its obeying your signals.

Should the whirring sound made by the bird changing its position be audible, have no fear, for ninety-nine out of a hundred listeners will set that sound down as made by the machinery which they have preconceived to be your assistant.

THE TARANTELLA DANCERS.

(*A New kind of* Chord *Trick.*)

With pith you form some little inch-high figures, with a grain of lead glued to their feet to keep them upright, the limbs of thick horsehair, and the dress of silk floss, attached by rolling the body, moistened with gum or mouth-glue, in it. You place a quadrille party of these on the strings of a horizontal pianoforte. Lift the cover so as to observe them, and, on touching the keys in a tune, they will leap about as if inspirited by the music. The cause is the vibration of the chords.

THE MAGIC CHAIR.

In the seat or back of a chair place a musical-box, wound up and ready to play on the release of a spring, liberated when any one seats himself thereon. Let the arms contain bands to secure the luckless chap who falls into them, and his attempts to liberate himself whilst a hornpipe is in process will excite much hilarity.

AUTOMATON TRUMPETER.

A musical-box is concealed in the pedestal of a figure, having clockwork to make it salute the company, put the trumpet to its lips, finger the keys, and so on. You distribute twelve pieces of music on cards among the company for one to be selected. You must force one, which is most easily done by choosing that which an accomplice suggests. However, there may be an objec-

tion to this; therefore, you pretend a little indignation at the company not being of one mind, and pretend to put the cards in a bag; but really the bag has already in it twelve similar cards, on which is printed the same piece of music. You can safely let any one, confederate or not, draw from this. Instead of a bag, a drawer can be employed. Now, on setting the trumpeter going, he will play the tune thus decided upon. Of course no second trial can be permitted on this occasion.

THE LITTLE SOLDIER WHO WILL ONLY LIE DOWN AT HIS MASTER'S COMMAND.

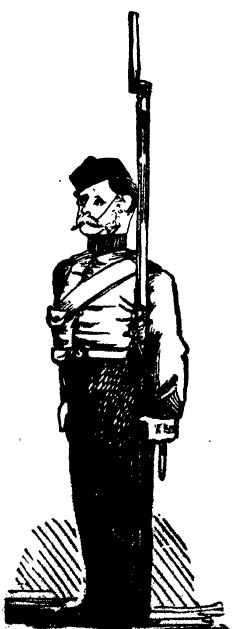


Fig. 184.

Shape out a miniature man of pith, or hollow metal, with a gun which has a barrel; in the base enclose a little lead or quicksilver, which compels the whole to assume an erect position, however violently it is for a time shaken, after the mode of those bowl-bodied mandarins in every nursery. Paint it and gild it prettily.

Cut off a bit of solid steel wire which will exactly go into the gun-barrel, and not project at its muzzle, which, being inserted secretly, will counteract the excessive weight at the base, and, by thus changing the centre of gravity, make the figure remain in a prostrate state. Therefore, when others try to overthrow the soldier without the ing in his gun, they

an impossibility. But you can succeed, each trial, without fear of failure. Do not let the wire be seen, and the better to prevent it sliding out of the gun, put a little beeswax at the muzzle, through which you can thrust the wire, but which will check its movement.

On page 82 we gave a modification of this trick, known as the Demon Bottle.

THE INVISIBLE POSTMAN.

Presenting to the company a little doll, about four high, you say:

"Ladies and gentlemen, I beg leave to present to you, under favour of the Postmaster-General, the little invisible carrier of all my important messages—my



Fig. 185.

private *commissionaire*, in brief, who never divulges a word of my secrets. He never duns me for his wages,

and cannot be accused of eating me out of house and home. He is all the better spy, from all parties whom he encounters esteeming him deaf and blind, not to say dumb. Now, then, John Henry Obadiah Flyingscud, haste to the West Indies, and learn how the milk gets into the cocoanuts."

You put the doll to your ear, as if to hear his reply, and, standing it on the table, say:

"True, you ought to have your waterproof on before such a long voyage!"

Show the waterproof, a light, deep-coloured silk cloak, long enough not only to cover the doll, but the performer's hand at the same time up to the wrist. Then pretend to carry on a whispered chat with the Postman, and, finally slipping the cloak over him, say:

"I understand, a traveller without money is like a ship without sails."

And twice carry your hand to your pocket, as if to get money to give to the doll, explaining:

"You cannot see the coin, my friends, because I give invisible tips to my postal official, because he travels unseen."

Instantly pull the cape up over the puppet's head, and show that your hands contain nothing. Now turn the cloak inside out, and shake it, to prove that the doll has vanished. Lastly, deliberately roll up the cloak and twist it into a ball no bigger than a walnut, and chant:

"Poor little fellow!
So nimble and airy;
He well may yell Oh!
In such a quandary.
The question of milk
In the cocoanut grown,
He dares not to 'bilk'—
So fears he my frown."

Stop abruptly, and look up in one direction, fixedly, so that all eyes will follow yours, and beckon, as to some object in sight, and sing:

"Out on the roof-tops,
Beware! you will freeze;
News of the milksops,
Young man, if you please
One good *churn* deserves
Returns of the same;
Come straight, without curves,
My *crême de la crême.*"

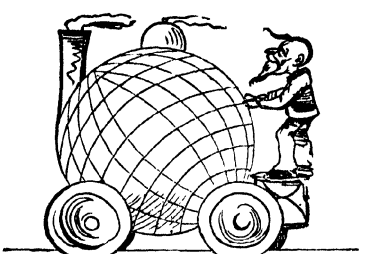
Whereupon seem to catch the puppet falling through the air, and hold him up in plain sight, as at the first.

Explanation.—The figure of wood is composed of three parts. The head has a rather long neck fitting into the trunk, on which the folded arms are carved; this body terminates in a peg fitting into the legs. These two sockets are tight enough for the figure to remain whole under ordinary handling. The cloak covers all, though without it the places of junction would not be perceptible. The performer can easily take them apart and pocket the lower two of them when he pretends to take money out to give the Postman, whose head is quite enough to lead the beholder to suppose the rest of the figure still there. The head is then put in a little pocket within the cape, which can be turned in every way without any sight of it being afforded. The head being shown again, all believe that the entire figure is again present.

THE DANCING DOLLS.

Make a figure of cardboard, with pegs at the knee, shoulder, and thigh joints, on which the limbs can

move, and through a hole, a little above the centre and back of it, pass two yards of elastic cord. Tie each end to objects, such as two chairs, about a yard high, sufficiently near together for the figure to all but touch the floor with its feet as it hangs in the middle of the string. Give it a pull, and it will dance up and down





INNOCENT DIVERSIONS WITH PLAYING CARDS.

THE CHANCES, IN WHIST, THAT THE FOUR HONOURS WILL NOT BE IN THE HANDS OF ANY TWO PARTNERS.

THE chances are about 27 to 2 that the partners, one of whom deals, will not have the four honours; 23 to 1 that the other side will not have them; 8 to 1 that neither side will have them; 25 to 16 that one side will count honours, or that they will not be equally divided.

HOW MANY DEALS IN ONE SUIT OF CARDS.

To discover this, make a continued multiplication of the whole number 52 by 13 terms for the 13 cards: 52 × 51 × 50 regularly to 41 × 40, inclusive; and also repeat for 13 × 12, &c., to 3 × 2 × 1. Divide one of the products by the other, and the result will be the number of different deals out of the pack. By logarithms, the ciphering is briefly made.

THE ARABIAN TRICK.

To take up twenty cards, at five times, and each time an odd-numbered one, arrange two suits, without the picture cards, one after the other, regularly from ace to ten, inclusive, and call the second ace eleven, the second tray, twelve, and so on. Then begin counting, but backwards, as in Arabic writing, from right to left, and saying, 20, 19, 18, 17, take up those four; next, 16, 15, 14, 13, and take up to the last, 4, 3, 2, 1, which are taken up. You have taken all up in five times, and every time an odd one, as 17, 13, 9, 5, and 1.

THE MAGICIAN'S OWN TRICK.

To name all the Cards in the Pack before being turned.

Use a full pack. Lay the cards out in suits before you as follows: diamonds, clubs, hearts, and spades. Commence at the left, diamonds, and pick out the cards from each suit in the following rotation: eight, ten, three, king, two, seven, nine, five, queen, four, ace, six, Jack. Jack will end in diamonds; from the next suit, clubs, take the eight, proceeding as before, the Jack ending in clubs; from hearts take the eight and proceed in the same manner, Jack ending in hearts;

spades take the eight, taking them up as before, when all will be picked up. You may then allow any one to cut the cards as many times as they wish. Then take the four top cards, which will be found to be some part of the above rotation, holding them in your hand as if you were in the act of playing a game, the top card being to your left, for example: supposing the four cards to be the nine of hearts, five of spades, queen of diamonds, and four of clubs, the next card on the pack will be the next card in rotation, ace, of the suit of the first card of the four to the left, viz.: ace of hearts, and so through the rotation, taking the suit from the four in your hand in regular order, when called off, having been careful not to break up the rotation and placing the four on the pack in the former position, lay the cards face down in thirteen piles; you will then find that the four cards of each denomination are in a pile by themselves in the same rotation as before, commencing on the left with the nines,—as in example above given, the next being fives, &c.

By committing the above order to memory, and with a little practice, this trick can be performed without holding the four cards in the hand.

TO FIND A CARD IN A CANDLE.

Among the many ways of producing a card, a piece of paper on which is writing, a ring, or a coin, from an unexpected place, after it has been juggled away, the following is striking:—

Having made away with the object, your confederate or yourself, as circumstances permit, places it in a candle, at the bottom of which, in its manufacture, a metal cone, like an extinguisher in shape, has been

set, so that the melted wax solidifies around it, and leaves quite a space, much like that at the base of wine-bottles.

The candle is brought into the room among others, lighted, and at the critical moment you have but to take it up, break it as by accident, and pull out the article apparently from the very thick of the wax.

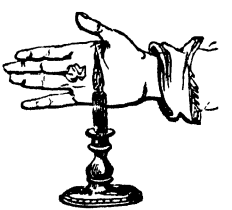


Fig. 186.

TO SHOW A CARD WITHIN AN UNBROKEN

You have previously prepared several eggs, by making a small hole in one end and forcing into each a card similar to the one which you intend to induce one of the company to draw. Therefore, after having had the duplicate card drawn, and pretending to shuffle it among the pack, but in fact making away with it, you call for eggs, and the prepared ones being brought in on a salver, you give the chooser liberty to select any egg of the number. On breaking it, of course the rolled-up card unfolds, and the audience apparently see the selected one.

CHAMPION TRICK.

To deal all the Cards out in Suits and in Order, placing every other Card at the Bottom of the Pack.

Lay the cards out in suits, the cards throughout this whole trick to be placed face up. Arrange the

hearts, clubs, and diamonds in rotation, commencing with the ace, face up, and ending with the king. Lay these on one side. Place the suit of spades in the following order:—Seven, ace, queen, two, eight, three, Jack, four, nine, five, king, six, ten.

The seven being at the bottom, face up, and the ten at the top—lay this on one side. Take the suit of clubs and place the ace on the table, cover it with the two spot, allowing about one-half an inch of the ace to remain exposed on the left, cover the two spot with the three spot, allowing the same margin, then the four spot, and so on till all are laid down, taking care to have a margin each time. You then take the suit of spades and place the bottom card, seven of spades, under the ace of clubs, place the ace of spades between the ace of clubs and the two spot, and so on, ending with the ten of spades being placed between the queen and king of clubs; then push them together, being careful not to let the cards lose their positions. You then take the suit of diamonds and lay them out as you did the suit of clubs, then the suit of hearts in the same manner, placing the ace of hearts on the king of diamonds, and continuing it on as before. Then take the two suits, spades and clubs, and add them to the diamonds and hearts as you did the spades and clubs, putting the seven of spades under the ace of diamonds, ending by placing the king of clubs between the king and queen of hearts. You now shove them into a pile, and are now ready to perform the trick. Turn the pack over, face down, and place the top card on the bottom, turn up the next on the table, and you will find it to be the ace of diamonds; the next card you put on the bottom and turn up the next, which will be the two of diamonds, and so on, placing every other card on the bottom to the last, turning up the others, which will be

found to be in rotation and in suits. Great care is requisite in arranging the cards, as one misplaced will spoil the whole.

TO GUESS SEVERAL CARDS CHOSEN AT RANDOM.

Show as many cards to each person as there are persons to choose: that is to say, three to each if there are three persons. When the first has thought of one, lay aside the three cards among which he set his choice. So with the next two persons, and then spread out the three first cards, face up, and above them the next three, and above these the last three, so that all the cards may be in three heaps of three each. Then ask each person in which lot is the card he thought of, and this much known, you can tell the cards, for the first person's card will be the first in the heap to which it belongs; the second's will be the second of that next heap, and the last person the third of the last heap.

THE ROBBERS' TRICK.

(Les Quatre Voleurs de Marseilles.)

Take one of the four Jacks and secretly slip three other cards on the back of it, and then place another Jack on it, leaving a little less than two inches of the first Jack exposed at the top; the other you place in the same manner, holding them all in your hand. You then show them to the company, and state that these four Jacks represent four robbers who forced an entrance into a dwelling-house through the roof, the occupants of which at the time were absent (at the same time you shove them all together in your hand, and place them on the rest of the pack), and before proceeding their nefarious business they agreed that

should go down into the kitchen (you then take the top card and place it in the pack near the bottom), one more to go into the parlours (place the next card on the top in the middle of the pack), one more to ransack the bedrooms (put this one near the top), and the last one to remain on the roof to give the alarm. He soon had sufficient cause to give an alarm, when they all fled. At the same time you remark, "Here they are," dealing them off the top, the Jacks not having been removed, the other cards having been the ones placed in the pack. If this is done neatly, it will not be easily detected.

TO MARK A CARD.

Run a needle into a playing-card only so deep as to pierce the first layer of paper; drop from the needle-point some clear water into the hole, which will make the paper swell up so that, even after it all dries, the prominence can be felt by you. It is needless to add that you must take care of your hands to reach much eminence in card tricks, though we do not counsel you to ape those gamblers who make their finger-ends and the ball of their thumbs raw with acid, and wear gloves so as to keep the part inflamed, and therefore highly sensitive.

THE DIAMOND TRICK.

Take the two, three, four, five, six, eight, nine, and ten of diamonds, and place them in a row on the table, and request any one to turn as many as they please around while your back is turned, and you will afterwards touch those turned. This is a very simple trick, but it will be found very difficult to detect. If you will examine these cards you will notice that the spots are nearer one

end than the other. In some cards there is quite a perceptible difference—in fact, in all cards there is some. The reason for selecting these particular cards is that the other suits cannot be turned without there being a difference in the formation or position of the spots; for example, the seven and five of clubs, &c. Place them in a row with the small margin at the top or bottom, as you please.

TO NAIL A CARD TO THE WALL BY A PISTOL-SHOT.

A card being drawn from the pack, the person who chose it tears off a corner, by which he can remember it. It is torn up into small bits, and burnt to ashes. The ashes are mixed with gunpowder, with which a pistol is charged, and on it, in lieu of balls, a tack, marked by one of the company, is placed. The pack is thrown in the air, and the pistol fired in the midst of it, when the burnt card is seen nailed to the wall. The card is found to agree with the piece torn off it, and the nail which perforated it is recognized as the marked one.

Explanation.—You force a card, and on seeing how it is torn, you similarly mutilate a duplicate. You ask for the chosen card, and substitute the other, which you destroy by burning. When the pistol is loaded, you take it to show how it should be managed. A plate at the side is opened by a secret spring, so that the nail falls out by its own weight. A bit of wire can be put back in its place, for fear the suspicious audience "may want the rammer to be passed down to convince them the nail still remains." While more powder and a wad is put in the pistol, you transmit the nail and card to your agent, who nails it on a square of wood, fitting hermetically a hole in the wall, covered with the same

papering as the wall itself. It is covered by a square of the papering, held up by two pins, which can be pulled away by means of a wire held by your assistant. On hearing the pistol shot, the wire is pulled, and the false papering disappears behind a looking-glass or picture-frame; the square with the card is unveiled. As the card and the nail are the same as the audience prepared, their wonder is assuredly justifiable.

THE POLITICAL TRICK.

An office under Government employed twenty clerks, ten of whom were Liberals and ten Conservatives. The superintendent was a Liberal. He received orders from higher authority to diminish the number of clerks to ten, with power to retain whom he pleased. He naturally, of course, wished to retain his friends, but in so doing he would be showing great partiality, which he wished to avoid. After deliberating upon the matter, he offered the following plan to the clerks for their approval, viz.:—To place themselves in a line promiscuously, and allow the superintendent to commence at the left and count off ten—every tenth clerk to consider himself discharged; to which they all cheerfully agreed.

In placing them in line, the superintendent took pains to arrange them in the following manner:—

1 L., 1 C., 3 L., 2 C., 1 L., 3 C., 2 L., 2 C., 3 L., 2 C.

Take ten red and ten black cards, the red representing Liberals (no sarcasm intended), and the black representing Conservatives (still less sarcasm implied), and place them as above, and you will find that the Conservatives were all discharged.

TO CATCH A CARD AMONG THE PACK IN THE AIR.

A person selects a card, looks at it, and replaces it in the pack. You pretend to shuffle (the *false shuffle* in "The Secret Out"), but really bring that card to the top. In handing the pack to one of the party for him to throw it up into the air, you leave in your hand this upper one. On your command the pack is thrown up, when, dashing your hand through the cards in their fall, you seem to catch one, which, of course, is that you held, and which you have worked forward to the end of your fingers.

TO SEND A CARD UP INTO A HAT.

You proceed the same way in this feat as in the last, up to the removal of the card. But instead of having the cards thrown into air, you borrow a hat, taking it in your left hand, and then into the other, which slides the card into it. Again change your hand—that is, shift the hat into your left hand, asking the person who holds the pack to put it under the hat, at the height of his head, and close against it, when naturally no one can see the card already inside it. You flick the pack lightly with your wand, and say: "Your touch has the virtue to send the chosen card up into the hat through the crown." The card will be found there indeed.

THE RECRUIT TRICK.

Take the four knaves, and lay them on the table in a row, and state that these Jacks represent four hawbucks, who wished to be soldiers, but, upon examination by the surgeon, two of them were rejected on account of phy-

sical disability, while the other two were held. Ask the company to select the two rejected and explain why. The cause is that two of them have only *one eye*. There is not one in ten who will notice this difference, it being the same in all packs of cards not of Continental make.





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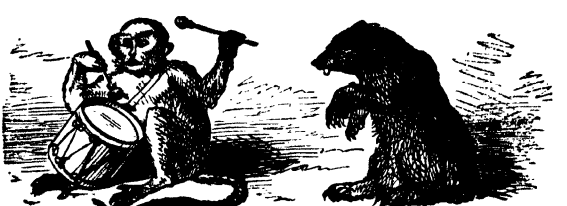
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